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MANUAL

OF

VETERINARY MEDICINE

FOR THE

USE OF FARMERS

BY

Prof. J. D. DUCHENE

VETERINARY SURGEON

QUEBEC, 1901—Press of The Daily Telegraph

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PREFACE

The cordiality of the reception bestowed upon the last French edition of the "Manual of Veterinary Medicine" which I published in 1900, together with the numerous flattering testimonials received from persons who have had the opportunity of making a successful use of its contents in the treatment of their animals, have induced me to undertake the publication in English of my work.

As I have already had the opportunity of stating in the French editions, I beg to reiterate here that this work is not offered to the public as being a complete treatise of the Veterinarian's Art, but simply as a compendium containing the most ordinary general rules of hygiene as applied to the farm buildings, also, on feeding and of such medical help and attendance, as can often be dispensed at home,

and without the help of the professional practitioner, and this in numerous diseases.

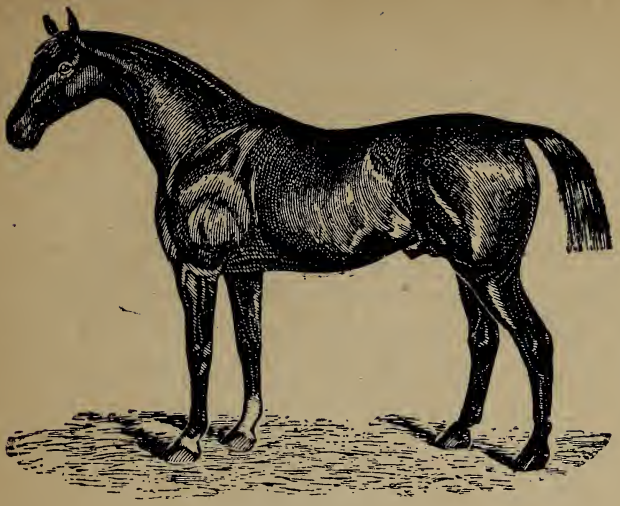
In serious cases the intervention of the Veterinarian is always indispensable; but in the minor disorders which frequently attack our farm animals, the timely use of the remedies and prescriptions contained therein will obviate or cure the disease.

Though of limited scope, this work, I hope, will cover the field that I had in my mind when I undertook to produce it and thus to realize my wish, which is, to be useful to the agricultural classes of my province.

JOHN D. DUCHÈNE,

Veterinary Surgeon.

Quebec, May, 1901.



THE HORSE

PRELIMINARY CHAPTER

THE HORSE AT THE STABLE

Stabling, Hygiene, Harnessing, General Care

The question of stable architecture and stable management is one of the highest importance, more especially is this the case in rigorous climates such as ours,

where rapid changes of temperature are of such frequent occurrence.

The stable walls should always be of double thickness and of tongued and grooved lumber, the windows of good size to allow ample light, the doors to fit tightly into their sashes to avoid permanent draughts. How many sound beasts are rendered incapable of furnishing the quota of work that can be expected of them, by the reason that they are not given the comforts indispensable to the maintenance of good health. Often they are quartered in low, damp and dark stables, without ventilation and often over-crowded.

In view of these facts, I have thought it opportune to draw the attention of my readers to this subject without, however, going into a mass of details which would be out of place in a work like this.

The stable floor should be strictly horizontal. Just now, it has become universal to give a fall of from 3 to 5 inches to the floor of a stable of about 9 or 10 feet. This custom is vicious and is far from accomplishing the proposed result, which is, of draining the floor of the urine, and this is explained by the fact that the animal, in attempting to restore his equilibrium on the inclined plane, is constantly stamping and moving about. This soon wears the flooring and the depression thus caused facilitates the imbibition of the urine and the soaking

of the litter. At the same time the horse acquires a tendency to *stand under*, the ultimate consequences of which are sprung-knees. Besides, could the horse talk, he would, I am sure, most emphatically deprecate the use of a floor which compels him to ever stand on a false equilibrium, certainly most prejudicial to both his comfort and conformation. I may add, that in the course of my professional career, I have often had occasion to treat and cure cases of lameness by simply altering the defectiveness of the floor.

Interior Arrangements.

The width of the stalls should always be proportionate to the height of the horses, so as to allow them to lie with their legs fully extended. Thus, if the height of a horse is 5 feet 3 inches the width of his stall should also be 5 feet 3 inches.

The stable door should be wide and if possible should consist of two halves. The height of the stable, inside, should be from 8 to 9 feet.

It is advisable that a box-stall be provided in every stable; it will be found most useful in cases of sickness or of prolonged inaction; these boxes allow the horses more freedom and comfort.

Temperature and Ventilation.

The normal temperature of a stable should be 60° F.

Ventilators should be located behind and not in front of the horses. The simplest and most economical ventilators are square wooden pipes, one end of which starts from the stable ceiling, then goes up through the loft and out of the roof, just like an ordinary chimney; the upper extremity is to be covered by a cap.

Many agricultural economists recommend the use of more complicated and possibly more effective systems of ventilation, but, remembering that as a rule when asking too much one runs the risk of obtaining nothing at all, I have deemed it advisable to mention only the simplest mode, which, if generally adopted, would certainly prove a considerable improvement to our rural constructions.

Hints Concerning Stable Management

The halters should be of a double thickness of leather, well sewn together and provided with ordinary buckles. The use of chains to tie with is recommended. The use of ropes is not to be encouraged, for whilst the advantage of being noiseless is claimed for them, this advantage is more than counterbalanced by the fact that they soon rot and are easily broken.

The method of fixing a weight at the end of the chain, which weight keeps it taught, is recommended and will obviate the danger of the animal becoming entangled in his chain.

In summer, the coverings should be of linen and in winter, of wool.

To bed down the litters, the use of wooden instead of steel pitch forks is recommended and will tend to diminish the possibility of accidents.

With regard to the hay lofts, which are generally found over the stables, they should be kept in order as far as is possible with such places, one half of the space being reserved for the hay and the other half for straw. To avoid dampness, forage should not be in contact with the walls.

Oats and bran are preferably kept in a shed, in boxes of known capacity, and every time these are emptied, they should be thoroughly cleaned of all chaff, gravel, dust, etc., etc., which might have accumulated.

Every stable should be provided with an automatic measure which would measure the exact ration of each animal.

Another important detail, which is, however, seldom appreciated, is that of the cleanliness necessary to the welfare of the horse. This constitutes the elementary rules of hygiene and stable economy. All that which

relates to the feeding of the horses must also be the object of the most scrupulous cleanliness.

The Harness Room

The harness-room should be kept in perfect order and placed under the charge of a person who takes interest in that sort of work.

The walls of the harness-room should be provided with harness racks and supports placed sufficiently high to avoid any portion of the harness touching the floor.

Wooden or cast iron bridle and saddle rack can be secured at low cost. Two supports are required for each harness, one of which to accommodate the bridle and collar, and the other the saddle and accessories.

When dealing with double harness, they are to be placed one beside the other. The cross reins are to be put through their rings, but not buckled.

When not in use the saddle should be covered with a piece of linen. The bits, curb chains, and check bits should be thoroughly dried after having been used.

The reins should be carefully coiled and kept in drawers as well as all wraps.

The whips should not be allowed to lean against the walls, which would soon bend them, but they should be hung by their tips.

Every harness-room should be provided with a stove,

which should, however, be placed at a certain distance from where the harnesses hang, so as to avoid drying the leather.

If to these few rules we add the necessary working materials such as a harness-horse, a steel-cleaning board, a few hooks on which to hang bridles, etc., etc., curry-combs, hoof-picks, sponges, brushes, polish, cleaning paste, a burnisher, chamois skins, old cloths and rags, the harness-room will then have the necessary accessories to allow it being kept in good shape.

The Coach-House

The coach-house should be separate from the stable, and this for the reason that the ammonia gases emanating from the stable would soon ruin the paint and varnish on the vehicles. All vehicles should be kept covered with large cotton sheets. In the case of two-wheeled vehicles the shafts should rest on racks provided for the purpose, in order to keep them in a horizontal position.

Care of the Horse

Upon his arrival at the stable, in the morning, the groom should, first of all, look to his horses and note if any departure from the normal condition of things has taken place during his absence. He must see to the blankets, the mangers, note if the feed of the pre-

vious meal has all been eaten, then attend to the complete change of air in the stable without, however, allowing any draughts. Should he notice any horse appearing dull, with a standing coat or assuming an abnormal position, he must at once inform his master of the facts.

The groom should then attend to the watering of the horses and this before allowing any food. The watering is followed by the allowance of hay and this by the ration of oats. Once a week, it is well to give a warm mash of bran or ground oats ; this mash should always be given at night.

The litter being removed, it should be placed (unless too much soiled by urine) in a place where it can dry. Useless to add that each day the stable must be carefully swept.

Grooming

Horses stained by contact with urine or manure are to be washed with soap and water.

To thoroughly groom a horse is not without difficulties, unless one is quite familiar with the handling of the brush. The curry-comb is mostly used to clean the brush, although it may be used in certain circumstances on some of the most muscular portions of the body, such as the neck and the upper portion of the legs.

The corn brush is useful to clean certain portions of the head such as the ears, the forelock, etc., etc.

The rubber brush gives an excellent finish to the grooming of a horse; it makes the coat shine, and is an excellent substitute to the hay wisp, which is also used for the same purpose.

Shoeing

It is evident that until recently, the question of shoeing has been sorely neglected. Most unhappily the capital importance, results and benefits that radical reforms which might be worked in the shoeing industry would bring about, are not yet clearly understood.

In fact, the majority of our shoeing smiths do not realize the grave consequences that may result from defective shoeing, more especially so in young horses, and seem to forget the old aphorism " No feet, no horse."

In order that a shoeing smith may be in a position to pursue his trade with intelligence, it is necessary that he should possess at least an elementary knowledge of the anatomy of the horse's foot.

We will enumerate a few of the anatomical notions.

Descriptive Anatomy of the Horse's Foot

THE WALL : This portion is the most extensive of the whole foot and forms the circumference of the hoof.

It includes all that portion of the horny case which is visible when the foot rests on the soil. The wall is divided into several important regions bearing various names, viz :

A. The Toe.—This is the anterior fifth of the circumference.

B. The Mammae.—Includes the fifth on each side of the toe.

C. The Quarter.—Also double, constitutes the posterior fifth of the lateral surface, immediately behind the preceding.

D. The Heel.—Situated immediately behind, corresponds to the point where the wall becomes inflected inward to constitute the bars.

E, The Bar or Stay.—Visible only on the raised foot, is the reflected portion representing the extremities of the wall, placed between the frog and the sole.

The internal quarter is more upright, shorter and thinner than the external.

The Sole.—The Sole is a large horny plate filling the internal which exists between the inferior border of the wall, the bars, and the point of the frog. The horny substance forming it is softer than that of the wall and the horny fibres or tubes have an oblique direction downwards and outwards.

The sole offers for study the following sub-divisions,

viz: An external and internal branch, a superior and inferior face, an external and internal border.

The branches are triangular in form and fill the space between the bars, the quarters and the heels.

THE FROG :—The frog is a wedge or pyramid of soft horn, which covers the plantar cushion, whose form it reproduces. Lodged in the angle formed by the bars and the posterior border of the sole, it is seen to be single in front and bifid behind: two faces and two extremities are thus assigned to it.

The color of the hoof is due to the presence of pigment in the horny matter, and varies greatly.

The hoof protects the soft tissues which it contains from all external influences, more especially against undue pressure during normal locomotion and against concussion during fast or long journeys over hard roads. Should the hoof be removed, we would then have the different portions forming the soft part of the foot exposed, thus we would find the coronary, navicular and pedal bones, the plantar cushion, the coronary band or cutidure, the podophyllous or laminated tissue and finally the villous or velvety tissue.

A great deal more information could be added to these few anatomical rules, but the limited scope of this work will not permit our doing so.

The shoeing-smith having once acquired a sufficient

knowledge of the anatomy of the foot, he should next devote his attention to the study of equilibrium and ascertain if the horse to be shod, interferes, forges or stumbles. He should also examine carefully the sole, the heels, and the frog, ascertain the condition of the horse, and should also be able to detect any abnormal length of the hoof. An examination of the old shoes will, as a rule, help the shoeing smith to detect any irregularities of equilibrium. If the shoe is worn evenly, then the equilibrium is normal, it being remembered, however, that the wear is always greater at the toe. If the outer branch of the shoe is worn the most, then the horse is pigeon-toed. If on the contrary the inner branch is most worn, you have an outbow-footed horse or else, defective shoeing.

Care of the Feet

The hoofs should be oiled occasionally, say once or twice a week.

The following prescription is recommended :

Pine tar	1 part
Turpentine	1 part
Beeswax	2 parts
Lard	5 parts

Melt over a slow fire until the whole is well mixed,

then stir until cold. The hoofs should be washed before each application.

After a journey or a day's work, when taking the horse to the stable, he should be allowed but very little water, but should be rubbed dry with either cloths or wisps of straw. After which, the horse may be watered and fed.

THE COLT

How to feed it

The future qualities and worth of a horse depend to a great extent on the care received during the first years of its life.

In order to produce a good horse, it is essential that the colt should possess a good bony frame and solid joints. Like any other animal tissue, the bones grow and develop as a result of the assimilation of good food, and should the food taken not contain certain elements essential to the formation and growth of bone tissue, it is evident that that portion of the animal's organism will remain deficient.

The mother's milk contains a large proportion of these substances, such as phosphates and carbonate of lime,

which are the most necessary to the development of bone. As the colt grows older, the amount of these substances needed is increased and the animal, in order to obtain the necessary amount, is often seen to lick and sometimes to actually eat the soil.

The farmers have within their reach all that is necessary to the production of bone, and these substances are oats and bran. Let it be remembered that colts should not be under fed of these substances. As soon as a colt can eat and properly masticate oats, there can be no danger in giving him daily a pint of oats mixed with an equal quantity of bran. Naturally this ration is to be increased in proportion to the growth of the colt. If added to this ration of oats, the colt is given an adequate quantity of good hay (which is a food containing a large amount of proteine, which is a substance essential to the formation of bone tissue, muscles, ligaments and tendons), we have all the necessary ingredients to help the production of a good colt. Nature will attend to the remainder.

THE MULE

It seems very strange that here, in Canada, no steps have been taken towards the rearing of mules, for

whilst it is contended that mules are vicious animals, it has been demonstrated beyond doubt that they are devoted and very much attached to the master who gives them due care and comfort.

At two years of age, mules are already able to render valuable services, and at three and a half years, they can perform the hardest of labor. Furthermore, they are more easily fed than horses and can in proportion to weight, draw heavier loads than horses. Mules remain sound and strong longer and attain older age than horses. No doubt but that the breeding of mules in this country would bring satisfactory results and returns, in proof of which we mention the demand England has created for these animals, which are now being purchased in foreign countries for military service in Africa.

THE HORSE AND HIS DISEASES

INTERNAL DISEASES

DISTEMPER OR STRANGLES

This is a contagious disease of the horse, seen most frequently in young animals, though adults are not altogether exempt from it.

SYMPTOMS: The nasal discharge is at first watery, then it becomes thicker, somewhat grayish or white and sticky. This discharge does not adhere to the nostrils. In most cases, a swelling takes place under the jaw, or in the intermaxillary space. This swelling is somewhat hot and tender, and finally becomes distinctly so, and an abscess is felt, or having broken itself, the discharge is seen dripping from a small opening, and occasionally there are skin eruptions.

Such are the symptoms of the *mild* form of distemper. We will not attempt here to speak of the *malignant* form of distemper with its train of complications, such as pneumonia, etc., etc., it being intended to take up separately each of these diseases, in another portion of this work.

TREATMENT: Careful attention to the hygienic condition of the surroundings is one of the most important factors in the treatment of strangles. The first care is that of isolating the affected animal or animals, the stable to be kept moderately warm, but also thoroughly ventilated and free from draughts, the use of warm coverings such as woolen blankets, the throat and neck to be covered with flannel, an ample supply of fresh cold water to be kept at all times within reach of the patient. If there are abscesses, they should be opened as soon as they mature.

The following should be given in the shape of a mash: Boil a handful of linseed in water during three hours, add sufficiently of bran to thicken to proper consistency, add a quart of oats, a teaspoonful of table salt and a little molasses, or

Boil an ounce of saffron leaves in a pint of water and use as a gargle.

Should the disease spread to and involve the throat, use the following prescription:—

R.—Chlorate of Potash 1 ounce
Water 1 pint

DOSE :—One wine glassful 3 times a day before meals.

ANGINA (*Sore throat*)

This is an inflammatory condition of the mucous membrane lining both the pharynx and the larynx.

SYMPTOMS : The nasal discharge is white, very thick, none adhering to the nostrils. The cough is at first dry and harsh, but soon softens.

If the breathing becomes labored or rapid or is accompanied by a whistling sound, it is an indication that the disease is progressing unfavorably.

TREATMENT : Thorough ventilation combined with protection from draughts. The use of warm coverings; the throat to be covered with flannel, or, still better, with a sheepskin with the wool inwards, or else, make use of mustard blisters.

Give powdered licorice mixed with honey, hay tea, and compel the animal to inhale the steam from boiling water.

In the case of abscesses, open them at once.

The following prescription is also recommended:

R.—Muriate of Ammonia 1 ounce.
Nitrate of Potash 1 ounce.
Spirits of Nitrous Ether 1 ounce.

Tincture of Aconite 40 drops.
Water :—A sufficient quantity to make one pint.
Dose :—One wine glassful every three hours.

COLD IN THE HEAD.—(Catarrh)

This disease is at first a congestion followed by inflammation of the mucous membrane of the nasal chambers.

SYMPTOMS : General uneasiness, dullness, sneezing; the nasal discharge is profuse, at first watery, then changes to that of a mucilaginous state, of a yellowish white color and adherent to the nostrils.

TREATMENT : The treatment is that of the preceding disease (Sore throat), but it is recommended to make especially frequent use of inhalations of steam from boiling water, to which may be added a little camphor.

R Iodide of Potash, 1 ounce.

Divide into twelve powders and give one night and morning in warm bran mash.

BRONCHITIS.

This is an inflammation of the bronchial tubes.

Of the many diseases affecting the horse, this is one of those to be most dreaded, and this, because it is nearly impossible to discriminate between it and other diseases of the respiratory organs. And as a conse-

quence of this error of diagnosis, the disease is permitted to assume a chronic form and leave the horse *broken-winded.* It is often mistaken for pneumonia, the symptoms being frequently quite similar and the treatment is almost identical.

Frequently, bronchitis makes its appearance without any apparent cause. It is, however, generally the result of exposure to cold, or to sudden changes of temperature.

SYMPTOMS : During the initial period, of fever and chills, the cough is harsh, painful, and the animal appears to resist the necessity of coughing. The nasal discharge is identical with that of Angina. The second period is recognized by the change in the nasal discharge which is sometimes tinged with blood and is of a brownish or rusty color, the cough is increased and rattling. This transition from the first to the second place generally takes place between the sixth and the eighth days.

TREATMENT : At the beginning, place the patient in a well-ventilated and comfortably temperate stall or box-stall. Allow a liberal supply of fresh cold water to which is added some oatmeal or bran, give boiled barley. Inhalations of Juniper are beneficial. Administer 10 drops of tincture of aconite every six hours. But should the symptoms indicate an aggrava-

tion of the disease, the sides of the chest, opposite the lungs, should be blistered with mustard, this mustard to be mixted with warm water and rubbed well in with the hand for about ten minutes. These mustard blisters should be left on three hours.

Never bleed and, contrary to an old established custom, allow the animal any quantity of cold drinking water that he may desire.

R.—Arsenic : From 5 to 10 grains twice a day or Iodide of Potash half a drachm to a drachm and a half, twice a day (night and morning). The use of Iodide of Potash is to be discontinued as soon as an increase in the flow of saliva is noticed.

PNEUMONIA

This is an inflammation of the lung tissue.

Symptoms : Pneumonia is usualy ushered in by a chill. The coat has a rough appearance, the breathing is quickened, at times labored, the horse hangs its head, the legs are cold, locomotion is difficult, there is no attempt at feeding, the animal does not lie down but persists in standing from the beginning of the attacks. The nasal discharge, when present, is of a rusty color. The cough is weak and painful, the pulse is very rapid, beating to 70 or more a minute and the temperature rises at times to 107° F.

It is usually during the first 10 days that the cure of this disease can he effected ; after that length of time, the disease assumes a chronic form and the professional veterinarian alone can cope with it with any chance of success.

TREATMENT : This is very nearly that indicated for bronchitis. In cases where the patients are very fat, light bleeding may prove beneficial.

R.—Chlorhydrate Ammonia, 3 ounces.

Water : Sufficient to make one pint and give one wine glassful of this mixture every two hours, or

R. Tartar Emetic, 1 drachm.

Mix with syrup and deposit on the tongue, 3 times a day, but this treatment must not be continued beyond two consecutive days.

During convalescence, give the following mixture twice a day :

Liquor Ammonia Acetatis,	1 ounce.
Powdered Gentian Root,	2 drachms.
Whiskey,	1 tablespoonful.
Linseed tea,	1 gill.

PLEURISY

This is an inflammation of the serous membrane that covers the internal walls of the chest.

SYMPTOMS : The symptoms and treatment of pleurisy

are so closely similar to those of pneumonia that we think it unnecessary to enter into the mass of detail that it would be necessary to master in order to enable the stock owners to differentiate them. However, it may be helpful to mention that in pleurisy, one of the most characteristic symptoms is the disinclination of the animal to move or turn round. When made to do so, he grunts or groans with pain.

COLIC

Pain caused by spasm or cramp of the bowels.

It is caused either by the accumulation of gas in the intestines, or by indigestible food, the presence of foreign bodies such as stones, etc., obstructing the intestinal canal, and also by worms.

SYMPTOMS: The general symptoms of colic are easily detected, as the animal suffering from colic evinces the most intense pain, he throws himself down, rolls over and over, jumps up, whirls about, drops down again, paws, or strikes, rather with the front feet, the upper lip is upturned, and the animal looks backward towards his flanks.

TREATMENT: If the case is one of wind colic the belly enlarges, and the most characteristic symptom of this form of colic is the distention of the bowels with gas, easily detected by the bloated appearance and resonance of the abdomen on percussion.

In such cases allow the animal to roll and to assume the most comfortable position, do not compel him to remain standing nor keep him walking.

Give injections composed of warm water and soap, to which may be added some oil; if constipation continues, add a little turpentine to the injections.

Administer a tablespoonful of baking soda in a pint of water every hour. If it be possible to procure diluted water ammonia, a half ounce of it in a pint of water will generally produce satisfactory results.

In cases where among the usual symptoms no bloating is noticed, then give stimulating remedies such as whiskey mixed with an equal quantity of water and administered in 4 tablespoonful doses, or again, powdered ginger in half ounce doses.

When it is thought that the colic is due to the presence of worms in the bowels administer seven drachms of powdered aloes, dissolve in a pint of raw linseed oil. During the purgation, which must last from 24 to 36 hours, give nothing but warm bran mashes and tepid water.

The following prescription may be used:

R.—Tincture aconite	10 drops
Spirits turpentine	1 ounce
Laudanum	1 ounce

The whole mixed in a pint of raw linseed oil and administered as one dose. Repeat every 3 hours until animal is relieved.

NOTE:—In cases of colic no food is to be allowed the patient, and only small quantities of luke warm water permitted. A rigorous diet is to be continued for 3 or 4 days after the cure is accomplished.

How to distinguish dangerous from mild forms of colic:

Dangerous	*Mild*
They appear gradually with slight fever, the pulse is rapid and hard to find.	They begin suddenly.
The ears and legs are cold.	The pulse is nearly normal and always full and strong.
The belly is very sensitive to pressure.	The ears and legs are warm.
Any movement executed seems to increase the pains.	The belly does not appear painful when touched.
The pains seem to be continuous without any intervals of relief and the animal is continually agitated.	Locomotion or any other movements do not increase the spasms.
The patient weakens rapidly.	The animal has intervals of relief.
	The animal does not appear to weaken.

RETENTION OF URINE

Retention of urine does not of itself constitute a disease. It is generally a symptom or the consequence of numerous disorders which it would be superfluous to indicate here, as these diseases generally require the presence of a veterinarian. We will, however, indicate a few preliminary precautions to be taken when the animal evinces the first symptoms of retention of urine.

1. The first care is that of thoroughly cleansing the sheath, because filth is frequently the sole cause of the uneasiness affecting the horse.

2. Administer a liberal amount of linseed tea : and teaspoonful doses of powdered rosin or use the following prescription :

R.—Spirits of Nitrous Ether 2 ounces
Water 1 gill

The whole in one dose, repeated 2 or 3 times a day.

BLIND STAGGERS

Caused by an effusion of blood to the brain

It is generally induced by over-feeding, the use of too nutritive food, more especially in extremely fat horses with short thick necks.

SYMPTOMS.—The horse may stop very suddenly and shake his head or throw himself down without any preliminary manifestations of sickness.

Quite often, after a few moments the dizziness seems to pass away, the animal rises, resumes apparently his normal condition and can generally continue its occupation.

Horses subject to staggers usually appear more sluggish, dull and sleepy than others.

TREATMENT.—Profuse bleeding at the neck, (Jugular vein.) The application of ice or cold water to the head.

Give reduced rations of less nutritive food and regular daily exercise. However, violent exertions immediately after the meals are to be avoided.

R.—Barbadoes aloes 1 ounce
Powdered ginger 1 drachm

Make into a pill or ball by mixing with molasses and administer in the morning on empty stomach, and during the action of this physic feed on bran mashes exclusively and tepid water as beverage. This physic is to be followed by the use of Bromide of Potash in 2 drachm doses twice a day during 15 or 20 days.

TETANUS (*Lock-Jaw*)

This disease is characterized by spasms affecting the muscles of the face, the neck, body and limbs. The spasms or muscular contractions are rigid and persistent, yet mixed with occasional more intense contrac-

tions of convulsive violence. Lock-jaw is usually the result of an injury such as a nail in the foot.

SYMPTOMS. — The rigidity of the spinal column renders locomotion difficult, the tail is usually elevated and held immovable, there is a protrusion of the haw over the inner part of the eye, there is inability to open the jaws to their full extent, the flow of saliva is increased, feeding is difficult on account of rigidity of the muscles of the jaw and soon all food is refused. The animal does not lie down.

TREATMENT : The first care is to place the patient in a quiet and dark place, where he is to be disturbed as little as possible.

R.—Prussic acid. 1 drachm

Once a day.

HEAVES—BROKEN-WINDED—ASTHMA

This disease is characterized by a peculiar movement of the flanks and abdomen.

SYMPTOMS : The flanks are seen to contract, then pause for a moment, then complete the act of contracting, thus making double bellows-like movement at each expiration, a sort of jerky motion with every breath.

The nostrils are wide open, there is a short, dry cough, the horse loses flesh and eventually becomes unable to perform any work.

TREATMENT: This disease is incurable, but can be palliated.

Feed with nutritive food-stuffs, small ration of hay, but increase ration of oats. Keep the animal in a comfortably warm but also well ventilated stable, and blanket him.

Give molasses, oil of pine-tar, or, still better, the following prescription which is effective :—

R.—Arsenic 10 grains.

Twice a day during 10 days, then discontinue the administration during 5 days, and begin again, this treatment to be continued during 5 or 6 weeks.

PARASITES OF THE HORSE

Worms

The principal species of worms found on the horse are the Ascarides, the Oxyures and the Sclerostoma.

The Ascarides.—This is the kind most commonly found on horses. As a rule they are not troublesome nor do they produce any grave disorders. They, however, have a tendency to cause a chronic looseness of the bowels. In rare cases, these worms may produce the following symptoms : Vertigo, epileptic convulsions, epilepsy, tetanus, and paraplegia.

TREATMENT.—An adequate treatment should be resorted to at once. The use of tartar emetic is recom-

mended in daily doses of from 15 to 20 grammes, this amount to be divided into and administered in four equal portions mixed with syrup and deposited on the tongue.

The following prescription is, however, to be preferred.

Male feru	200 grammes
Calomel	8 "
Phosphate Strontium	30 "
Sulphate of Soda	500 "

The whole in one dose.

The Oxyures.—These parasites are sometimes seen protruding from the anus and occasion violent pruritus.

TREATMENT. Make use of anthelmintic enemas prepared as follows :

Decoction male feru	100 grammes
Soap	50 "
Ordinary coarse salt	200 "
Water	2 quarts

The Sclerostoma.— After the ascarides, these are the worms most frequently found in equines.

TREATMENT.—Two ounces of turpentine in a pint of raw linseed oil ; this dose to be repeated two or three successive mornings on empty stomach. A diet of warm bran mashes for two or three days is recommended.

EXTERNAL DISEASES

LAMENESS

Lameness is not a disease, but rather the symptom of one or several diseases localized to some portion of the limbs and causing irregularities in locomotion.

We will state briefly how the seat of the trouble can be detected, and enumerate the ordinary causes of lameness.

Before proceeding further, it is well to say that when it is contemplated to attempt the diagnosis of a case of lameness, that it is indispensable to be provided with a hammer, a pair of pincers and a shoeing knife.

There remains to be ascertained :

1. In which leg is the lameness ?
2. Where is the seat of the lameness in the limb ?
3. What is the nature and gravity of the cause of lameness ?

The examination of a lame horse can be made during rest, at the walk, but more especially at the trot.

The animal must be watched from before, from behind and from each side. It is also helpful to make the horse go up or down hill, or to move him alternately on soft and on hard ground.

At rest, a painful limb is detected when the horse " points," that is, rests the weight of the limb on the

toe ; but the trot is the best gait for the ascertaining of the lame limb. Thus, if the horse is lame in a fore limb, the head is raised as the lame limb touches the ground, if a hind limb is affected, the croup and the head are raised simultaneously. Again, during locomotion, the weight of the body is supported a much longer space of time by the sound limb.

A multitude of signs by which lameness can be determined could be given, but as they are generally known, it would be superfluous to enter into any more details.

The lame limb once positively known, how shall we discover the exact seat of the trouble ? There lies the difficulty. It must be ascertained if the animal has ever shown symptoms of lameness previously, if he has performed work to which he is not accustomed, or again, if he has had a fall.

Then the limb must be carefully examined, every portion of which must be felt in order to discover the presence of heat, pain, or swelling. A most characteristic means of diagnosis is the following : If a horse " points " but with the whole surface of his foot resting on the ground, it can be taken for granted that the seat of the ailment is not in the foot but in the shoulder, whereas, if the foot rests on its toe, with the heels off the ground, the cause of the lameness will generally be found in the foot.

In the hind legs, when the lameness is due to some trouble in the foot, this latter is frequently raised ; whereas, if due to pain in the hock the limb is held bent, the foot resting on its toe.

The foregoing indications will permit, in a general way, to locate the seat of lameness ; especially characteristic symtoms and special methods of discovering the cause of lameness will be given with each particular disease.

FOUNDER-LAMINITIS

This is an inflammation of the sensitive tissues of the foot.

It is either acute or chronic.

Causes : Drinking large quantities of water while in an overheated condition ; overfeeding with oats or other grains ; concussion from long drives on hard pavements or roads.

Symptoms : The first symptom is usually the interference with locomotion ; the fore feet are well extended forward, so that the weight is thrown upon the heels, whilst the hind feet are brought forward beneath the body to receive as much weight as possible, thereby relieving the diseased ones. The feet are hot and dry to the touch and extremely sensitive to percussion.

Treatment : The shoes must be carefully removed, the animal placed in a box-stall if there is one avail-

able, with an abundant litter. For this purpose tan-bark is recommended. Apply warm linseed poultices, which are to be renewed twice daily. Hot foot baths are also most beneficial. Internally, administer in one dose, 6 drachms of powdered aloes in a half pint of raw linseed oil. After the action of this physic has passed, give a tablespoonful of baking soda in a pint of water once a day during 6 or 8 days.

If the cure of founder is not effected within the first 8 or 10 days, it then becomes chronic: in which case the hoofs are deformed. This form of the disease is most difficult to cope with and usually its treatment is not followed by satisfactory results.

THRUSH

This disease is characterized by an excessive secretion of unhealthy matter from the cleft of the frog.

CAUSES: The ordinary cause of thrush is the filthy condition of the stables in which the animals are kept. Colts are especially liable to this disease. There are also other causes such as hard work on rough and stony roads and defective shoeing. Thrush does not necessarily lame the horse.

TREATMENT: The first measures of treatment must be the removal of the causes and the prevention of their return; the treatment is simple: with a shoeing-

knife remove all loose or diseased portions of the frog, great care being taken against wounding the sensitive tissues underlying them, then dress with chimney soot mixed with vinegar, or else bathe the feet in brine.

The following prescription is also recommended :—

R.—Sulphate of Iron 3 ounces

Dissolve a teaspoonful in a quart of water and use as a bath.

CONTRACTED HEELS

This is a shrinking of the tissues of the foot, whereby the lateral diameter of the heels in particular, is diminished.

Causes : Faulty shoeing and thrush. Animals raised in wet or marshy districts, when taken to towns and kept on dry floors, are liable to have contracted heels.

Symptoms : Lameness, generally accompanied by intense suffering, the shrinking and narrowing of the heels being most evident. Pain is induced by percussion with a hammer. The patients generally "point."

Treatment : When shoeing, care must be taken that in filing the shoe, the shoeing smith does not bring the hot shoes in contact with the feet as the shoes should be cooled first. The best adopted method of shoeing is the one which allows the frog to rest on the ground, the heels being allowed to extend beyond the branches of the shoes.

Give cold foot-baths 2 or 3 times a week, and make use of the following hoof-ointment :

R.—Pine tar	1	part
Turpentine	1	part
Lard	5	parts
Beeswax	2	parts

Melt over a slow fire, stir until cold and apply to the hoofs 2 or 3 times a week.

CORNS

This is an injury to the living horn of the foot, involving at the same time the soft tissue beneath : they appear in that part of the sole included in the angle between the bar and the outside wall of the hoof.

Causes : Faulty shoeing ; shoeing at too long intervals, long journeys over hard or stony roads, the collection of small stones or dry earth or other objects between the sole and the shoe, finally, the rocking motion of the coffin bone within the hoof may also produce corns, more especially in low flat feet.

Symptoms : Corns generally induce sufficient pain to cause lameness, this lameness being more intensified when the animal is travelling on a hard road than on wet soft ground. The foot is so brought forward that it is relieved of all weight and the fetlock is flexed until all pressure by the contents of the hoof is removed

from the heels. The heels are very sensitive to percussion with a hammer and the use of the shoeing knife will reveal that not only the sole in the angle is found discolored, but, often, the bar and wall adjacent are also stained with the escaped blood.

In suppurating corns, the pus collects at the point of injury and finally escapes by working a passage way to the top of the hoof, where an opening is made by separation of the wall from the coronary band at or near the heels : Wide feet with low heels are especially predisposed to corns.

Treatment : The cause must be found and removed. If due to the shoe it must be carefully removed; if due to some foreign body inserted between shoe and foot, remove it at once. Apply warm linseed or bran poultices during a couple of days and pare the sole at the seat of the trouble. As soon as the lameness has disappeared apply a strong shoe, fitted in such a way that the pressure is relieved from the sore heel.

SAND-CRACKS

This is a solution of continuity or fissure in the horse of the wall of the foot ; sand-cracks are usually found directly in front or near the heels.

Causes : Faulty shoeing, the contact of hot shoes to the feet whilst shoeing. This has a tendency to drive the natural moisture out of the horn and occasion fissures.

Another and more frequent cause is the unnecessary use of the rasp, by the shoeing smith, on the outer surface of the hoofs.

When sand-cracks are superficial, there is no lameness, but when the cracks are deep, they are generally accompanied by lameness.

TREATMENT : Apply 2 or 3 linseed poultices to soften the horn, then, with a shoeing knife, thin the wall on either side of the fissure, and apply a bar-shoe. After this has been done, remove the hair immediately above the crack and make 2 or 3 good frictions with turpentine, or, still better, use the following prescription :

R.—Powdered Cantharides 1 part
Lard 4 parts

Mix thoroughly and rub well in with the hand.

PUNCTURED WOUNDS OF THE FOOT

These are injuries caused by the penetration of foreign bodies into the sole or the frog.

Nails are usually the most common instrument by which these injuries are inflicted.

The wounds are more or less serious according to the depth of penetration and the importance of the tissues involved.

TREATMENT : Remove the shoe and poultice with linseed during 24 hours. Then, with a sharp shoeing

knife thin out the sole in the vicinity of the puncture, great care being taken not to draw blood, which might cause the growth of proud-flesh.

After these preliminaries, bathe in decoctions of red spruce bark or roots and after 3 or 4 days treatment if the animal still appears to suffer and puts no weight on the wounded foot, and more especially if there is a discharge from the wound, no time must be lost in consulting a veterinarian.

RING-BONE

This is the growth of a bony tumor on the ankle. They are often quite apparent to the eye, but their presence is more easily detected by means of the hand. They usually cause lameness.

Ring-bones are always grievous and more particularly so when they involve the joints.

CAUSES : The most frequent is hereditary. In this country, unfortunately, so little intelligent care is taken in the selection of breeding-stock, that the spread of this disease, through hereditary, is allowed to continue.

Ring-bones can also be the result of injuries, such as blows or slipping on pavements or of many other external causes.

TREATMENT : Absolute rest, the use of the firing iron followed by application of the following blister :

R.—Biniodine of Mercury	1 part
Powdered Cantharides	2 parts
Lard	16 parts

Take enough of the above ingredients to make two ounces, mix thoroughly and rub well in after the use of the firing iron.

Care must be taken that after the operation and the blistering, that the animal be tied sufficiently short to prevent his biting the seat of pain, nor should he be allowed to lie down for 2 or 3 days.

At the end of 5 or 6 days apply a good coating of lard over the whole surface.

SPLINTS

They are bony enlargements which are developed generally on the inside of the canon-bone, between the knee and the fetlock joints.

Splints which are close to the knee or the fetlock, are to be feared, as they frequently interfere with the utility of the horse.

The presence of splints is readily detected by the hand, if they have attained sufficient development, and also by the fact that lameness is apparent when the animal trots and absent at the walk.

TREATMENT : The treatment is identical with that of ring-bones. But no treatment should be attempted on splints which do not cause lameness.

SPRAINS

A sprain is a more or less complete laceration or yielding of the fibres of muscles, tendons, or of the sheaths surrounding and supporting them.

The sprain of the fetlock being the most frequently met with and the treatment of sprains in general being identical, we will especially mention only this one.

CAUSES : Injuries, blows, falls, violent exertions of strength.

SYMPTOMS : Lameness, more or less intense according to degree of gravity of lesions ; evidence of soreness in the vicinity of the joints ; there is frequently swelling and heat in serious sprains, but little weight rests on the injured limb, as a rule, the fetlock is flexed and when the patient is walking, when the injured leg is supporting the weight of the body, it appears to be vacillating.

TREATMENT : At the beginning, the long continued use of cold water bandages generally produces satisfactory results. But after two or three days, if it be impossible to have a plaster of paris bandage applied, it is advised to prepare one with starch and which must be kept in place for from 15 to 20 days and sometimes more. After that lapse of time, if there is no improvement, make use of the following prescription :—

R.— Powdered Cantharides 1 part
Lard 4 parts

Sufficient of each to make 2 ounces.

Remove all the hair and rub well in with the hand during 5 minutes.

For hip, shoulder, loins and pastern lameness, make use of the same ointment.

DISEASES OF THE TENDONS

SPRAINS OF THE SUSPENSORY LIGAMENTS AND FLEXOR TENDONS

This is characterized by a more or less extensive swelling, reaching from a small spot of the middle of the back of the tendon to a tumefaction reaching from the knee down to and even involving the fetlock itself.

SYMPTOMS : It is characterized by heat and various degrees of sensitiveness and swelling. At first, the lameness is slight and when at rest the animal does not appear to suffer any pain, but there is an increase of pain the moment the animal attempts to walk.

TREATMENT : Hot water fomentations ; frictions with camphorated alcohol, followed by the application of moderately tight bandages.

The most successful treatment is the use of running

water baths, that is, to stand the animal in a brook or small water course for a half hour twice a day.

If at the end of 12 or 15 days, a complete cure is not effected, make use of the following prescription :—

R.—Turpentine	1 part
Olive Oil	4 parts

Give two good rubbings with this preparation, with an interval of 24 hours between applications.

The fourth or fifth day apply a good coating of lard. If this treatment is not efficacious, recourse must be had to firing, which operation, however, can only be properly done by a veterinarian.

WIND-GALLS

This is the inflammation of the small membranous pockets called synovial bursac found at the joints and tendon sheaths.

SYMPTOMS : Their most characteristic name indicates their predominating symptom, which is a soft tumor of varying size, according to the amount of secretion that they contain.

CAUSES : Long continued and arduous labor over macadamized roads by horses unused to such work. Blows, falls, slipping.

TREATMENT : This must be very energetic from the

very beginning, the application of two or three successive blisters being recommended.

Then place the animal in a loose box, having previously had him shod with high calks.

Internally, administer 2 ounces of sulphate of soda twice daily during 8 or 10 days.

SPAVINS

Bone-spavin, to which we will confine our remarks, is a bone tumor growing on the lower portion of the inner side of the hock joint.

This is one of the most serious evils afflicting our equine friends. The majority of our horses are suffering from it, and, however limited the scope of this modest work, we cannot allow this opportunity to pass without emphasizing this point; because this state of affairs has been brought about by the negligence and ignorance of the farming class in general and of the stock-breeders more particularly. In fact, horses suffering from spavins, which are hereditary, are daily used for breeding purposes, regardless of the fact that the offspring of such parents must necessarily be inferior and valueless animals. And such things take place not only among our farmers, but also in our public institutions, whose intended purpose it is to ameliorate the quality and standard of the native horse.

WOUNDS AND THEIR TREATMENT:

Wounds are divided into incised or clean cut-wounds ; lacerated or torn wounds ; contused, bruised and punctured wounds.

Incised wounds are the simplest, and the sharper the instrument and the cleaner the cut the greater the chance of speedy healing. A clean cut wound which has not been exposed to the air and which lodges no foreign body and no septic or infecting germ, will heal readily by simple adhesion, whereas those that have been exposed and contain matter foregin to the tissues, will have healing delayed or prevented by the disturbing action of such bodies

The healing of wounds takes place by the following modes, viz :

1. *By primary adhesion* :— Union by this means may be affected within 24 hours after the wound has been inflicted. Of all domestic animals, however, the horse is the least prone to such union, being more disposed to the formation of pus.

2. *By granulation* :—This is the common form of healing in raw, exposed sores, in those containing foreign bodies and septic and infecting ferments, also in torn and contused wounds. In this form, the new tissue, as formed, undergoes a steady contraction, drawing in the adjacent skin over the wound, and this ex-

plains why in the case of large wounds healed in this way, the skin is more or less puckered around them.

3. *By Scabbing* :—In which the discharge on the surface of the wound dries up into a firm scab, under which the process of repair goes on by the development of tissue from the deeper cells, as in adhesion.

In treating clean, incised wounds, attempts should be made to secure healing by primary adhesion, even in the horse. Bleeding should first be arrested, or nearly so, by applying a cold or hot sponge, or by tying bleeding vessels, and the lips of the wound should then be closed accurately, without any twisting or overlapping. In small wounds, pieces of sticking plaster may be used, the lips of the wound having first been smoothly shaved, so that they may adhere finally. In larger wounds the wound may be sewed with a curved surgical needle and a silk thread dipped in a solution of carbolic acid. The stitches may be continued from end to end of the wound, and the thread prevented from slipping and loosening by a knot at each end ; or the stitches may be independent, the two ends being tied together across the wound. In such cases they may be from one-quarter to one third of an inch apart ; or the lips of the wound may be pinned together, the pins in a simple skin wound being inserted one-eight of an inch from the edge and when both lips have been

transfixed in this way, a thread, or horse hair, carried successively around the two ends of the pin and made to describe a figure 8 will hold the wound closed.

When efforts at primary union have failed and pus has formed, and the lips gape more or less, some antiseptic dressing will be required, as in the case of lacerated and contused wounds.

In cases where an incised wound has had foreign bodies or septic ferments introduced into it, these should first be removed. A current of water that has been boiled and cooled is one of the best methods of cleansing a wound, and there is no objection to the addition of one-twentieth of its amount of carbolic acid, as this will tend to destroy any germ life that might otherwise prove fatal to the healing process. Then the wound may be stitched up as if it had been clean, and a daily dressing of carbolic acid 1 part and sweet oil 10 parts may be applied.

For a wound on the convex surface of a joint, where stitches are not sufficient to keep the lips applied to each other, the movement of the joint may be temporarily abolished by the application of a splint and bandage, and in any such case the bandage should be applied uniformly from the hoof upward, as otherwise the limb below the bandage is liable to swell or even die. The treatment of contused, punctured, and lacer-

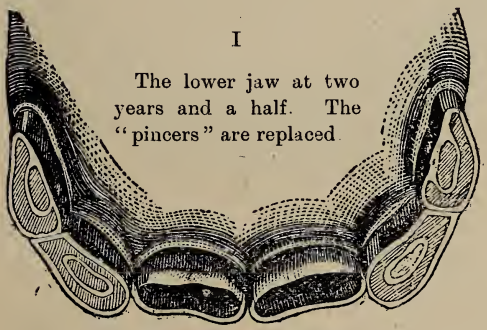
ated wounds demands cleansing and antiseptic applications as for an incised wound, but as primary adhesion is next to impossible, the same accurate apposition of the lips by stitching is not so essential. If portions of skin or other tissue are so detached or crushed that they cannot possibly live, they may be cut off, but if there is any doubt on this matter, the injured portion should be left and every attempt should be made to preserve it. Such portions of the wound as are free from such fatally injured parts may be disinfected by the carbolic lotions referred to above, and stitched up like a clean wound. The severely injured parts may be left open to discharge and the whole may be dressed daily with the carbolized oil, or with a solution of one part of mercuric chloride in one thousand parts of water.

Granulating wounds may be irrigated with the mercuric chloride solution and if the granulations become inflamed and rising above the edges of the wound, they may be touched lightly with a stick of lunar caustic so as to have them covered with a white film.

In all wounds that fail to heal by primary union an elaborate antiseptic treatment is desirable, but the difficulty of applying this successfully to the horse in an ordinary stable would seem to forbid a lengthy description in a book of this kind.

AGE OF THE HORSE

The following plates will give a general insight into how to determine the age of horses :—



I

The lower jaw at two years and a half. The "pincers" are replaced

The horse has 12 incisors, 6 in the upper and 6 in the lower jaws. They are subdivided into "pincers," "intermediates" and "corners."

On colts the pincers make their appearance before or a few days after birth; the intermediates 4 to 6 weeks after birth; the corners 6 to 9 months after birth.

II

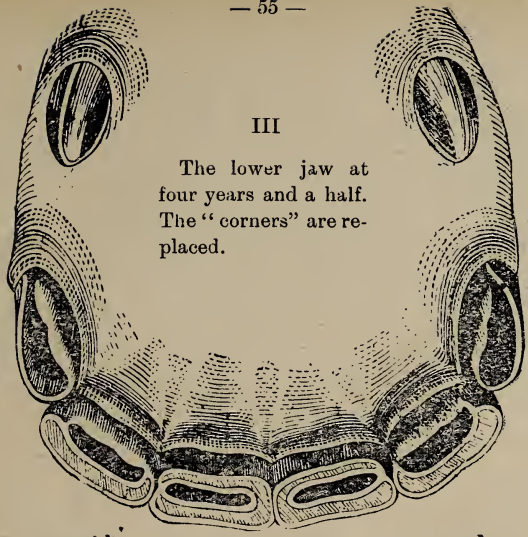
The lower jaw at three years and a half. The "intermediates" are replaced.

REPLACEMENT OF THE INCISORS.

The pincers	at $2\frac{1}{2}$ years
The intermediates	at $3\frac{1}{2}$ "
The corners	at $4\frac{1}{2}$ "

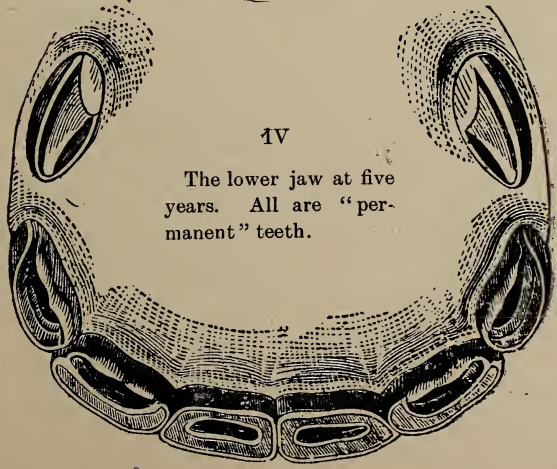
The pincers are levelled at 6 years; the intermediates at 7 years; the corners at 8 years.

After this age has been attained, the veterinarian is the only competent authority who can determine the age.



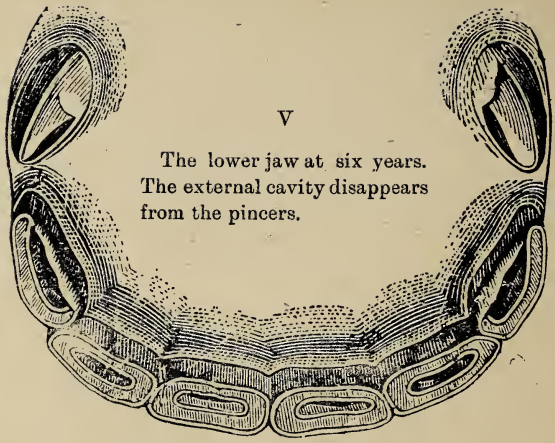
III

The lower jaw at four years and a half. The "corners" are replaced.



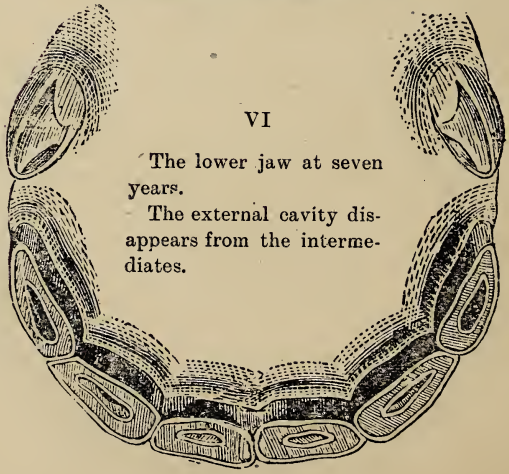
IV

The lower jaw at five years. All are "permanent" teeth.



V

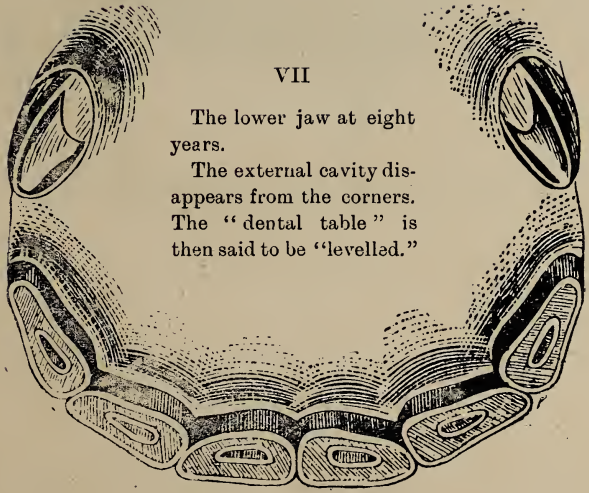
The lower jaw at six years. The external cavity disappears from the pincers.



VI

The lower jaw at seven years.

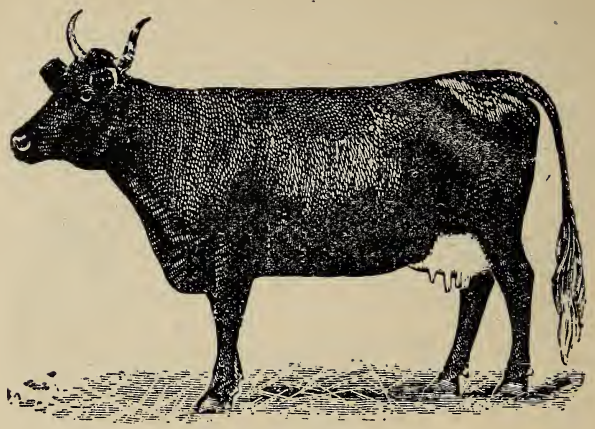
The external cavity disappears from the intermediates.



VII

The lower jaw at eight years.

The external cavity disappears from the corners. The "dental table" is then said to be "levelled."



THE COW

DISEASES OF THE RESPIRATORY ORGANS

CATARRH

This is the inflammation of the mucous membrane of the nasal chambers.

Exposure to cold is the most frequent cause; if catarrh is neglected, the inflammation can readily spread to the lungs and cause bronchitis and pneumonia.

This disease can also be caused by draughts, dampness, and defective stable drainage.

SYMPTOMS : There is generally fever, the mouth is hot, the muzzle dry, the horns are warm, the ears cold. The animal sneezes and sometimes coughs. The nasal discharge is watery.

TREATMENT : Place the animal in a well ventilated and comfortable stable. If there is constipation, administer a half pint of castor oil or of melted lard. If there is diarrhœa, give large quantities of lime water.

Compel the animal to inhale steam from boiling water. You may use also the following prescription :

R.—Nitrate of Potash,	3 ounces
Muriate of Ammonia,	3 ounces
Tincture aconite,	3 drachms

Sufficient water to make one quart. Give a tablespoonful of this mixture every 4 hours until cured.

Mustard blisters may also be applied to the throat.

Allow the animal all the cold water it may want.

LARYNGITIS

This is the inflammation of the mucous membrane of the larynx.

This disease is easily complicated with pneumonia.

CAUSES : Similar to those of catarrh ; in addition to these, it may be due to the introduction of irritating bodies in the throat.

SYMPTOMS : General uneasiness and dullness, the head is extended, the throat swollen and sensitive, the

mouth hot. There is always more or less cough and an increased flow of saliva.

There is loss of appetite and the animal does not lie down.

TREATMENT: The application of mustard blisters to the throat once a day during 2 days.

After these, if the inflammation still persists, then apply warm linseed poultices.

Give about 2 tablespoonfuls of saltpetre in the drinking water twice a day. Feed on grass or roots if practicable.

R.—Chlorate of Potash, 4 ounces
Water, 1 quart

Gargle 4 or 5 times a day.

BRONCHITIS

This is the inflammation of the mucous membrane of the bronchial tubes.

CAUSES: The exposure to cold is the principal cause, but it can also be a sequel to catarrh or sore throat.

SYMPTOMS: The disease appears suddenly; the breathing is rapid, the cough is loud, deep and apparently painful.

After a few hours, the pulse, which remains full, may beat up to 80 pulsations per minute. The temperature rises as high as 106° F. The muzzle and

the horns near the head are warm, whilst the ears and the legs are cold. The animal does not lie down.

TREATMENT: Apply mustard blisters to the sides, immediately back of the fore-legs, these blisters to cover a space of about a foot square.

R.—Mineral Kermes,	3 ounces
Spirits of Nitrous Ether,	5 ounces
Tincture Aconite,	5 drachms

Sufficient water to make one quart.

Dose: Two tablespoonfuls every 4 hours.

PNEUMONIA

Pneumonia is the inflammation of the lung tissue.

CAUSES: Exposures to sudden changes of temperature. It is also a frequent complication, or rather sequel of catarrh, laryngitis and bronchitis.

Either only one or both lungs may be affected.

SYMPTOMS: At the beginning, there are generally chills, which, however, as a rule, pass unobserved.

Breathing is rapid and the animal appears to be out of breath, the coat is rough, there is cessation of the chewing of the cud, the appetite is capricious and finally the animals refuse food, accompanied by the loss of milk with the cows. The pulse is full, rapid, soft. It may beat to 90 pulsations per minute.

The temperature may vary from 104° to 107° F.

Where there is congestion, death may take place during the first few days. And when there is no apparent improvement on the fourth or fifth day, the case may be considered a serious one.

TREATMENT: Mustard blisters on the sides and use the following prescription:

R.—Spirits of Nitrous Ether,	4 ounces
Tincture Aconite,	2 drachms
Fluid Extract Belladonna,	4 drachms
Nitrate of Potash,	2 ounces
Ammonia Muriate,	2 ounces

Water.—A sufficient quantity to make one quart.

Dose.—Two tablespoonfuls, in a little water, every 3 or 4 hours until recovery of animal.

PLEURISY

This is the inflammation of the serous membrane lining the thoracic cavity and the lungs.

CAUSES: Dampness of the stable, wet and marshy pastures and all the divers causes enumerated when speaking of pneumonia.

Bovines are especially predisposed to contracting this disease.

SYMPTOMS: More or less fever, breathing is not only rapid but also very painful, and the animal shows signs of actual suffering.

The back is roached, the pulse quick, small and hard. The sides are extremely sensitive to the touch. The muzzle is dry ; the cough painful; the animal does not lie down and moves about with the greatest difficulty.

TREATMENT : Give two teaspoonfuls of saltpetre every 3 hours : to this add a tablespoonful of baking soda 3 times a day. Apply mustard blisters to the sides.

When this treatment has been continued 3 days, follow with

R.—	Infusion of Gentian,	1 pint
	Powdered Ginger,	1 drachm
	Carbonate of Ammonia,	1 drachm
	Molasses,	2 ounces
	Water,	1 pint

Mix the whole and administer in one dose, to be repeated 3 times a day.

DISEASES OF THE DIGESTIVE ORGANS

TYMPANITIS: (*Accumulation of gases in the stomach*)

CAUSES : Indigestion due to food of inferior quality or too dry. It may be brought about by the presence of foreign bodies in the oesophagus, or it may be caused by over feeding with green food, such as clover or alfalfa.

The most characteristic symptom is the swelling out of the left flank ; by striking it with the hand in front of the haunch a drum-like sound is elicited.

Breathing becomes more and more labored as the accumulation of gases increases. The nostrils are dilated, the animal appears uneasy, agitated, lies down, only to rise again after a moment, and unless prompt help is forthcoming, the animal soon dies by asphyxia.

TREATMENT : The treatment must be both prompt and energetic. If a trocar is not available, (instrument with which to puncture) use an ordinary penknife which must be driven into the left flank, at an equal distance from the hip bone, the last rib and the transversal processes of the lumbar vertebra (back bone.)

After the gases have been made to escape by puncturing, administer a light physic such as :

R.—Sulphate of Magnesia, 1½ pounds.
Bicarbonate of Soda, 1 ounce.

Dissolve in a pint of warm water and a gill of syrup. Administer the whole in one dose.

Rigorous diet during the following 2 or 3 days.

CONSTIPATION

There is a delay in the expulsion of the defecation. It is frequently the symptom of some other disease, and is often followed by, or rather, complicated by colics and inflammation of the bowels.

TREATMENT : Give large quantities of salt water, and as a laxative, give a pint of raw linseed oil.

Warm water and soap injections are beneficial.

R.—Powdered Nux Vomica, 1 ounce.
Bicarbonate of Soda, 3 ounces.

Divide into 12 powders and give one powder night and morning in warm bran mashes.

DIARRHŒA

It is especially frequent in young calves and ordinarily makes its appearance between the tenth and fifteenth day after birth.

R.—Powdered Opium, 1 drachm.
Prepared Chalk, 6 ounces.

Divide into 12 powders and give one powder night and morning.

To the above can be added 2 tablespoonfuls of lime water twice a day administered in boiled milk.

DYSENTERY

This is an aggravated form of diarrhœa, attended with fever and occasional abdominal pain ; the large intestines are generally the seat of this trouble.

SYMPTOMS : There is general uneasiness, loss of appetite, dullness, occasional colics with frequent straining to satisfy the desire of emptying the bowels ; the discharges are offensive and for the most part liquid.

The discharges are coffee-coloured or bloody ; digestion is impaired ; the eyes are congested ; the back is roached. This disease may last from 2 to 8 days.

TREATMENT : Absolute diet ; large quantities of rice water ; mustard blister to the abdomen ; injection of gruel.

R.—Medicinal Salt, 6 ounces.
Powdered Gentian, ½ ounce.
Powdered Opium, 1 drachm.

Give the whole in one dose, to be repeated every day for 3 or 4 days.

PERITONITIS

This is the inflammation of the serous membrane lining the cavity of and covering the organs contained within the abdomen.

CAUSES : The most usual are : Blows, sudden changes of temperature, or it may be the sequel to surgical operations.

SYMPTOMS : The animal remains standing and looks backward toward its flanks, and the flanks are drawn up. Pressure on the belly produces acute pain ; the animal moves with a stiff or sore gait. Breathing is rapid, the pulse quick and the temperature high.

TREATMENT : Give 1½ pounds of medicinal salt to which may be added one ounce of ginger and administer in one dose, the whole being dissolved in a quart of water.

R.—Camphor,	2 drachms.
Sulphuric Ether,	½ ounce.
Ammonia Acetate,	4 ounces.

Dissolve the camphor in the sulphuric ether, then add the ammonia and administer the whole in one dose in gruel.

HŒMATURIA

Hœmaturia is often the symptom of the nephritis and the cystitis. When there is no symptoms of inflammation in the kidneys or in the bladder, hœmaturia seems to be then an essential disease, result of an alteration of the blood. Causes may derive from dry forages, bad alimentation, alterated constitution due to

an abundant secretion of milk and ingestion of pimples of oak or beech-tree.

TREATMENT : An alimentation of good quality but given at small rations, which may be gradually increased, use of kitchen common salt in the forages, as condiment, but not every day. The tincture of iron in a tablespoonful dose in a mashed bran, twice a day, is also recommended.

ANTHRAX (*Black Leg*)

This is a severe and usually contagious disease, caused by the admission of bacteria into the animal's body, which produces a profound alteration of the blood, characterized by the destruction of the red blood corpuscles.

It affects all animals exposed to its contagion, but it has been especially observed that animals pasturing in low or marshy countries are more frequently affected. This is explained by the fact that marshy lands dry out during the heat of summer and are then covered with light rains.

SYMPTOMS : Death is sometimes so sudden that it takes place before the observation of any symptoms of illness. At other times, the disease may run for a couple of days. In such cases, the disease is generally ushered in by violent chills. The underside of the

eye-lids are congested, breathing is rapid and finally the case terminates fatally.

It is needless to say that the flesh of such animals is unfit for human consumption.

Again, the disease may run for 5 or 6 days, in such cases, there is a faint hope of an ultimate recovery.

NOTE: In France and in the other countries where preventative inoculations have been employed, the disease has nearly disappeared.

There is practically no treatment to be indicated or recommended against anthrax, although consultation with a veterinarian may be conclusive to the adoption of efficacious preventative measures.

One important matter to the stock owners is that of deeply burying the carcasses of animals who have died of black leg.

ACTINOMYCES (*Lumpy Jaw*)

Infectious disease of cattle caused by a ray fungus (actinomyces). The last few years have seen the spreading of this disease in Canada.

SYMPTOMS: The evolution of this disease is extremely slow. An animal may be affected with it during several months and still retain a healthy appearance.

The first apparent symptom, and this after the animal has become emaciated, is the inflammation of the throat, which may assume such proportions as to cause death.

The most noticeable symptoms are tumors which appear at the throat or on the lower jaw-bone. These are often accompanied by a discharge.

The disease may also spread to the internal organs. In certain cases, hard blows may produce swellings somewhat analogous to those of actinomyces, and one must be guarded against mistaking the one for the other. An easy way to facilitate the diagnosis is to remember that when the tumor is the result of a blow or an accident, that the general condition of the animal remains unimpaired.

TREATMENT : Give ½ drachm doses of Iodide of Potash twice a day and externally make use of

R.—Powdered Iodide of Potash, 1 ounce.
Lard, 4 ounces.

FOREIGN BODIES IN THE OESOPHAGUS

This accident is of frequent occurrence in cattle whose food, consisting often of potatoes or turnips, are not always sufficiently masticated to allow them to pass down easily into the stomach.

In cases of this kind, the animal attempts to vomit alternately with efforts to swallow. There is cough and the discharge by the mouth of frothy matter : there is distension of the belly caused by an accumulation of gases, and unless immediate help is forthcoming the animal soon dies by asphyxia.

TREATMENT : When the above symptoms have been observed, it will be well to feel the throat so as to ascertain the exact location of the obstruction, then to press gently upwards so as to push up whatever is causing the trouble Another way is to introduce the hand through the mouth into the throat, to seize the foreign body and pull it out. This can be done without danger.

If injury to the hand is feared, place a small board in which a hole sufficiently large to allow the hand and arm to pass has been made, transversely in the animal's mouth.

If it be found to be impossible to remove the foreign body, then try to push it down into the stomach with any suitable instrument.

The once popular method of crushing the foreign body by means of pincers or between two mallets is not to be recommended.

FRACTURE OF THE HORNS

If the fracture is only partial, it may be remedied by splinting the horns and immobilizing them by means of a yoke.

If the fracture is complete, amputate and dress with oakum or flax saturated with alcohol.

LICE

How can these be prevented ? Farmers should, at least once a year, whitewash the interior of all their buildings.

Enforce the most scrupulous cleanliness in the care of the animals.

TREATMENT : Boil half a pound of black tobacco in two gallons of water and sponge the animal with this infusion, from head to tail.

The following prescription is also recommended :—

R.—Benzine, 1 part.
Olive Oil, 1 part.

Mix well and use as preceding preparation.

COW-POX

This disease is an eruptive affection of the teats and udder, accompanied by more or less fever.

It may be transmitted to human beings by inoculation. This disease is the source from which is obtained the vaccine used in human medicine as a preventative against small-pox.

TREATMENT : The only treatment to be recommended is a strict adherence to the rule of the most rigorous hygiene. Use may also be made of a decoction of walnut leaves.

Cows affected with this disease should not be milked

by hand, but rather, with a milking syphon, and this for the reason that there is danger of inoculation to the milker which may then contaminate the whole herd.

DISEASES AFFECTING THE ORGANS OF REPRODUCTION

GESTATION

Gestation begins immediately after the intercourse of the male with the female, that is to say, immediately after the fecundation following an effective copulation. Gestation is thus that period of time extending from the fecundation to the parturition or birth of the fœtus. This period is of varying length, according to different breeds and individuals.

The extreme limit of time is from 300 to 340 days, but the average duration of gestation is usually 280 days.

As soon as a cow is pregnant, material changes can be observed in her ordinary habits and behavior. It is generally more tractable, kindlier, and seems slower and more careful in its movements.

At pasture she has a tendency to isolate herself and o especially shun the bull. If this latter is in the

herd it is well to remove him as soon as the period of heat is passed. Otherwise, without this wise precaution he might worry the cows and cause them to miscarry, which accidents are always annoying and often accompanied with danger.

The pregnant cows should be treated with care. They must never be hurried into or out of the stable, more especially so where stable doors are narrow.

As gestation advances, blows and knocks on the belly may prove fatal.

During the winter especially, the mode of feeding must be modified. Thus it is recommended to give as little as possible of those food-stuffs which, whilst bulky, afford but little nutrition, such as straw for instance. On the other hand, it will be well to increase the rations of nutritive food, such as the oats.

It will also be well to ascertain positively the pregnancy of the cows. But this can be easily done only about the fifth month. For this purpose, apply the flat of the hand on the right flank, then give a sharp push inwards. After a moment or two the sensation of a hard body coming against the palm of the hand will be felt, thus showing the presence of a fœtus within the womb.

Or again, give the cow a few mouthfuls of cold water, after which, by carefully examining the right flank, a

rounded body will be noticed moving backward and forward within the abdomen.

If a first examination fails to reveal the presence of a fœtus the same means may be employed a few days later. There are cows on which it is impossible to ascertain pregnancy before the sixth or the seventh month.

PARTURITION

As the termination of pregnancy approaches, there is an increase in the volume of the mamma which fills with milk. The croup looks hollow as do the flanks: there is tumefaction of the vulva; increase of space between the labial, which becomes soft and flabby, allowing the escape of a viscid, glairy mucus, then as parturition is at hand the "water bag" appears. As the calving begins, the cow generally lies down; the pains become more severe and increase in violence until the final expulsion of the fœtus. This may be termed normal parturition.

The cow then gets up and following the details of her maternal instinct, at once begins to lick and attend her progeny.

It is very important that the calf be given the very first milk from the mother, as this milk acts as a laxative, which soon clears the intestinal canal of the new born.

If the calf is not sufficiently strong to do so himself,

he must be brought to his mother, or else the cow should be milked and this first milk given to the calf.

However, parturition is sometimes accompanied by difficulties and complications.

Thus, if at the end of the first half hour's labor, the expulsion of the fœtus has not taken place, it will, then be necessary to assist the cow. To accomplish this purpose, it is well to select a person known to the cow, one who feeds or milks her for instance. The less noise and the smaller the number of persons around the patient the better. As soon as the legs appear in the passage it will be well to exercise a slow continuous traction on them, avoiding sudden jerks. This traction is especially helpful during the expulsion efforts.

Should half an hour of this work lead to no result then the internal conditions must be ascertained. For this purpose, a sufficient amount of warm water must be available, then after oiling the arm and hand with olive oil, introduce them into the passage to ascertain the exact position of the fœtus.

If the hind legs are presenting themselves, try to turn the calf so as to bring the fore legs and head into the passage, after which, proceed as indicated above.

When it is found to be impossible to change the position of the fœtus, and if no skilled help is available, then endeavor to bring the calf out, hind parts foremost.

ABORTION

This is the expulsion of the fœtus before the full period of gestation.

Causes : Blows, crowding through narrow doors. The ingestion of poisonous weeds may also cause abortion. These are the ordinary causes, but it happens at times that not only one cow but whole herds abort, in which case we have what is termed "epizootic" abortion to deal with and the help and advice of the veterinarian must be sought at once, he alone being able to determine and detect the causes of the outbreak of abortion, which may be due to a microbe or to the fact that the herd is affected with tuberculosis.

RETENTION OF THE ENVELOPE (*Placenta*)

If, on the day following the calving, the cow has not dropped the envelope, make injections of warm water or else tie a 4 or 5 pound weight to the protruding portion of the envelope. Internally, give one ounce of anise seed boiled in a pint of water and cooled or

R.—Rye ergot, 8 drachms.

Administer in sweetened water.

If these means fail to bring about the desired result, then recourse to the mechanical removal of the placenta must be resorted to. This requires the presence of a veterinarian.

INVERSION OF THE UTERUS

Falling down of the calf-bed

This is usually a sequel to parturition and generally takes place immediately after calving.

A clean bed-sheet must be secured and disposed in such a manner as to receive the womb and prevent its contact with the floor or bedding. If it is soiled, it must be thoroughly cleansed with tepid water.

Then, assisted by one or two persons, endeavor to push in the womb, but this must be done with the greatest of care, so as to avoid wounding those globular growths found on the surface of the womb.

This operation ended, it is advisable to place the animal on ground elevated behind, so that the hind quarters may be higher than the fore.

It is also recommended to make use of a suitable bandage or truss, so as to remove any recurrence of the accident.

A few days of strict diet are recommended.

MILK FEVER

This disease, with which most cattle-owners are unfortunately familiar, is a disease peculiar to cows and generally appears after parturition, but may in exceptional cases appear before the birth of the calf.

SYMPTOMS: The attack usually takes place suddenly from one to three days after calving. Strange to say it has been observed that this disease more especially follows normal and easy parturition.

There is loss of appetite; cessation of the chewing of the cud, loss of power or partial paralysis of the hind quarters. At last the animal sinks down, the head is thrown back to her side, the muzzle resting on the litter.

The skin is alternately warm and cold, the coat is staring, the muzzle is dry and hot, the eyes closed, the pulse is accelerated and small. There is persistent constipation and retention of urine. At times the animal moans.

TREATMENT: Administer one and a half pounds of medicinal salts, to which add one ounce of powdered ginger and a gill of syrup, the whole to be dissolved in a pint of warm water and administered in one dose.

Hot water and soap injections are beneficial.

Medical perscription:

R.—Spirits of Nitrous Ether,	3 ounces.
Tincture Aconite,	20 drops.
Linseed tea,	1 pint.

Give the whole in one dose, to be repeated every 4 hours.

PARALYSIS OF COWS AFTER PARTURITION

This disease appears suddenly immediately after calving. There is cessation of the appetite and of the chewing of the cud, weakness, the animal seems to totter or remains lying on its litter. This weakness, however, seems to be localized to the hind parts. The cow becomes almost insensible to the touch or to pin thrusts. In some cases, convulsions have been observed, the abdomen is distended, the patient moans, etc., etc.

TREATMENT : Rub the vertebral column with a liniment composed of

Turpentine,	3 parts.
Linseed or Olive Oil,	1 part.

Apply ice to the head and administer internally one pint of raw linseed oil. But the most efficacious treatment is a copious blood-letting at the tail.

MAMMITIS

Inflammation of the udder.

CAUSES : Exposure to cold, blows, falls or the bruising resulting from the butting of the calf whilst sucking.

TREATMENT : At the beginning, a rigorous diet. Milk the cow three or four times a day and this with much care and gentleness.

Administer internally.

R. — Sulphate of Soda, 8 ounces.
Nitrate of Potash, 2 drachms.

Twice a day during two days.

Externally, apply warm linseed poultices to the udder, these poultices to be renewed 3 or 4 times a day, With these, use the following prescription.

R.—Gum Camphor, 2 ounces.
Olive Oil, 16 ounces.

Mix thoroughly and rub well into the udder twice a day.

HORN-FLIES

These are small black flies, about one third the size of the ordinary house flies. It would be superfluous to describe them more exhaustively, as they are well known to all farmers.

They usually confine their attacks to the horns though they are sometimes observed on the other portions of the body.

TREATMENT :—Oil and tallow are the ordinary ingredients used. The following prescription may also be, used :—

Coal Oil, 2 parts.
Soap Suds, 1 part.

To this add 9 times the same quantity of water, the whole to be mixed well together by means of a syringe and applied with a sponge or, still better, with an atomizer.

TUBERCULOSIS

It has been demonstrated beyond doubt, and it is now generally admitted by the medical profession that tuberculosis of man and cattle is identical. This theory being established and the contagiousness of the disease from cattle to man being also admitted, the question naturally presents itself: Is the public fully acquainted with the nature of tuberculosis, its mode of propagation, and its devastating propensities? I say no, and I think it a pity that, so far, but very little has been said or done to warn or guard our population against this dread enemy.

In order to successfully combat an adversary, it is of the utmost importance that we be thoroughly acquainted with its character, its resources, its force of resistance and attack. With this end in view, permit me to endeavor briefly to outline the nature of this disease among our lower animals, or rather more particularly our bovine friends. And it being constantly carried in mind what I have already stated, that tuberculosis, or consumption, of man and cattle is identical, the close relationship is easily and readily perceived.

While looking around me for material with which to work, I came across a pamphlet written on this subject, published in 1895 by the Iowa Agricultural College.

I found the work in this publication so well done and so infinitely superior in all respects to everything I have yet seen on the subject, that I have eagerly availed myself of the opportunity of embodying a good portion of it in my work ; to this I have added here and there a few comments.

Origin of the Disease in Canada

It is quite impossible to trace accurately the appearance of this disease in Canada. We have known of its existence among our cattle for many years, and undoubtedly it traces back to a very early period in the history of our cattle industry. We first became acquainted with it in herds of well-bred cattle ; especially those that were represented by imported individuals. Comparatively little was known at the time of the history of and the real danger from the disease and nothing of the modern methods of detection. Thus it may safely be presumed that the introduction of imported animals was doubtless an important factor in the introduction of the disease.

How the Infection is Extended

A living organism, the *bacillus tuberculosis* is the reproductive agent which gives rise to the disease. When this germ finds lodgment in suitable tissues, and is uninterrupted by any antiseptic agent or opposing force,

it tends to multiply with a certain degree of rapidity, and the result, in the affected tissue, is the deposit of tubercle. Any organ of the body may be assailed, though lymphatic and other glandular tissues, the lungs, liver and spleen are parts particularly prone to be the seat of the disease. Any affected animal becomes a centre of infection from which the disease may spread. Its distribution is never rapid, but a single case in a herd is certain to be followed by others in the course of time if unrestricted co-habitation is allowed. The bacilli are coughed up or expelled from the body through other channels. These may be at once conveyed to the body of a susceptible animal, or they may lie in a dried and dormant condition for months and be revived into activity when implanted in a suitable soil. Every individual going out from an affected herd becomes a menace to the animals with which it is brought in contact. Doubtless the sale of breeding stock has had more to do with the general distribution of the disease than any other one agency. A general indictment cannot be entered against the breeding stock of the country, but many of our breeders can testify to the trouble they have experienced in their endeavor to free their herds from the scourge.

Influence of management on extending infection

The fact is admitted by investigators generally, that the character of the buildings exerts a certain influence either for or against the dissemination of the disease. It is an universally admitted fact that cattle kept in ill-ventilated underground barns, with inadequate air space, furnish favorable conditions for increased contamination. This fact has been emphasized to the extent that some have come to the conclusion that this cause alone furnishes practically all the explanation that is necessary to account for the disease in our herds. Such is not the case. Bad sanitary conditions can no more originate the specific poison or tuberculosis than the virus of small-pox can be developed by the same methods. Both diseases may be aggravated and the cases multiplied by such exposure, but neither disease can be so generated. It is by no means true that extensive invasion of any given herd is to be found only when the animals are kept under such conditions. Some of the very worst outbreaks investigated were confined to animals that had never been kept in barns. If an infected individual is brought into a herd of perfectly healthy animals, it becomes a menace to the health of that herd, no matter what the conditions are, under which the cattle are kept, so long as they cohabit in an unrestricted way. In support of the theory,

that sanitary conditions alone cannot stay or produce tuberculosis, let me mention in a casual manner the outbreak of tuberculosis recently reported at the experimental farm of Ottawa. Surely, the best of hygiene and sanitation are supposed to reign supreme in this place, nevertheless, behold the report.

Let no man flatter himself that his herd is safe in the presence of a single case of tuberculosis, no matter what the extent of acres over which they may range. True, these favorable conditions will lessen the chances of infection, but they cannot remove them.

What are the symptoms of the disease?

It is a difficult question to answer, because of the extent of detail involved in making a full statement of the case. From what has been previously said on the question, it will be understood that almost any organ of the body may be the seat of the disease. The symptoms will be correspondingly various. The pulmonary type, or that form of the disease in which the lungs are extensively affected, may be said to be the typical form. In nearly all the cases, where the disease is allowed to run its course, the evidence of lung affection will become apparent before death relieves the animal. This form of the disease is attended with difficult respiration, high temperature, frequent and feeble pulse, painful cough, failure of milk, emaciation, diarrhoea,

and finally, death. Occasionally, the first symptoms may be severe lameness from tuberculous deposit in the articulations. Swelling and abcesses about the throat and udder of cows, are not infrequent manifestations. When non-vital organs are the first seat of the disease, the animal may coutinue in a fair state of general health for months and even years. Doubtless there are occasional cases of final and permanent recovery. The disease, in nearly all cases, assumes a chronic type, which is misleading to the owner. But it must be accepted at once and for all, that it is impossible to detect any considerable proportion of the cases at any given time, by the most searching physical examination of the expert. If it is the fixed purpose of the owner to find the real extent of the infection in a diseased herd, he must have recourse to slaugter, or apply the tuberculin test.

Relation of meat and milk supply to public health

That the mortality in the human family, from tuberculosis, exceeds the death roll from all other infectious diseases put together, is a generally admitted fact. It being kept in mind that the disease is common to man and the lower animals, and that its existence in the animals that maintain the food supply of man is a menace to public health; and when we consider that the veterinarian must be the guardian of the public

health in this respect, I think I can be readily forgiven for having attempted this task.

Statistics place the death rate from this cause as high as fourteen per cent. At some of the Indian Agencies, in the United States, where the habit of eating uncooked meat still prevails, the mortality statistics show that fifty per cent. of the deaths is due to tuberculosis. It is a very difficult matter to determine approximatively how much of the mortality from human consumption is to be attributed directly to infection from the lower animals. The causes in most of the cases are so hidden in obscurity that a definite explanation is impossible. But there is abundance of positive proof and still more collateral evidence to show that the food supply derived from the animal kingdom is no small factor in the distribution of the disease. A more frequent source of infection, in the human subject, is the milk supply, and it is surprising how little the general public are enlightened upon this subject. They recognize that the disease exists in the beef-supply, and they consider a rigid inspection of meat a matter of necessity, but they seldom think of the dangers lurking in one of the most universal articles of diet. Even in intelligent families, too little attention is paid to the source of the milk-supply for children. It may be that my fear of infection by milk is exaggera-

ted, but one can hardly think so, when we hear of the frequency of tuberculosis of the mesenteric glands in the young. It is obvious then, that a great responsibility rests upon those who have the supervision of the health of children.

How can healthy herds be secured, and how can they be kept free from disease?

This is the practical question towards which all the others tend. It is of little consequence to know that disease exists, unless that knowledge can be made to aid us in averting the evils we have found. The means by which the total extermination of the disease can be accomplished, do not seem to be in sight. So long as there remains a case of consumption in the human family, there remains the possibility of re-infection of bovines. But the probabilities of infection from this source are remote, and should not be taken as arguments against any restrictive measures that might be adopted.

While absolute extermination of the disease at once may not be practicable, I believe it to be entirely possible to so far restrict its dangers, as to render them of slight consequence. In the first place, the country should, and could, at comparatively small expense, eradicate the disease in the dairy herds, and the practice of applying the tuberculin test to all dairy cows,

should be made a compulsory measure. Once the herd is free from disease, it can readily be kept in this condition by exercising due precaution in the introduction of fresh stock. Those dairymen who had unfortunate experience with the disease, would soon adopt the practice of admitting none but tested cows to their purified herds This practise, if uniformly adopted, would very soon render the dairy herds of Canada free from tuberculosis. If, in addition to these precautions, similar vigilance was exercised over the introduction of breeding stock to the herds, the chief sources of infection could thus be shut off. If restrictive measures of this kind were applied to these two classes of cattle, practically all the cases of tuberculosis in the country would soon be found, and its ravages reduced to a minimum. The measures adopted in a few herds in the Dominion, if applied to the remainder, would go very far towards eradication. It is quite possible to reach most important practical results without the expenditure of very large sums of money or the sacrifice of important interests.

All animals suffering from the disease in any of its stages should be at once removed from contact with other cattle. It is the opinion of those who know that any plan which contemplates keeping tuberculous animals on the farm, and attempting to avert danger

by segregation and other like precautionary methods, will defeat its own ends. The less the number of possible source of infection in the country, the more successful will be the efforts at eradication. Buildings, where tuberculous animals have been confined, are to be regarded as infected, and no healthy animal should be assigned quarters in such enclosure till they have been thoroughly disinfected.

It is true that a single tuberculin test may not in in every instance free the entire herd ; after infection may take place. It would be wise, in those cases where a number of badly affected animals have existed, to take the precaution of applying additional tests some months after the first.

All this involves care, the expenditure of a certain sum of money, and the occasional loss of an animal. But the animal already suffering from an infectious and highly fatal disease, cannot be considered to possess any high value. The inconvenience and expense attending such precautions are small in comparison with the loss and risk involved in allowing the disease to run its natural course in the herd, and the sale of dangerous products for human consumption.

THE TUBERCULIN TEST

(Extract from bulletin No. 1 published by Department of Agriculture, 1897.)

Until the discovery by Professor Koch, in his experiments to discover a cure for consumption in human beings, that the injection of tuberculin invariably caused a rise in temperature when the person or animal was tuberculous ; while it produced no effect whatever when free from it, the detection of the disease in early stages or when slightly affected was considered impossible in most cases. This test is most delicate and reliable (about 98 per cent.) where it is properly applied.

Tuberculin is a soluble product of cultures of tubercule bacilli, of which a glycerine extract is made which is sterilized by heat and filtered through porcelain, so that it contains no living germs, and therefore cannot produce tuberculosis in animals injected with it. It has, therefore, no effect on healthy animals. In some cases the diseases is aggravated by it when it exists, but it cannot be produced by it. The lymph must not be exposed to sunlight. It must not be frozen ; must be kept well corked to exclude air.

Tuberculin injection has no bad effects on the secretion of milk.—The consensus of opinion of those most experienced is that it does not lessen the secretion of

milk in dairy cattle, consequently they may be tested even when in full milk without disturbing its secretion.

Dose.—The dose varies with the size and age. As issued by this department it is ready for use, with doses marked on the bottle, viz : 20 drops for calves, 40 for small or medium sized animals, 60 larger, and 80 drops for very large ones.

When second tests are considered necessary, at least thirty days should elapse and the doses be slightly increased.

Preparations for the test

It being decided to test a herd, the following suggestions should be considered : If the weather is extremely hot or very cold, wait till it moderates. If the animal is suffering from an inflammatory disease, when the temperature is over 102° from any cause, a cow being bulling, a bull being sexually excited, scarcity of water, impure air, irritation from flies, pregnancy in advanced stages, are all unfavourable for reliable testing.

Instruments necessary.—The following instruments are required. One or more Fahrenheit (clinical) thermometers, a hypodermic syringe with three strong hypodermic needles and a fine trocar and canula, a fine brad-awl, and a pair of clippers or curved scissors, and several glass droppers.

The Thermometers in use for this purpose cost about $1, are self-registering, and can be bought at any drug store.

Syringes.—Metallic syringes, strong and easily taken apart to be cleaned and disinfected, costing $3, can also be obtained at drug stores, or instrument makers.

The Scissors and Brad-awl are easily and cheaply procured at any hardware store.

Charts for recording tests which should be numbered and the name or number of the animal, the colour and markings, sex, age, breed, hours at which the temperatures were taken before and after injection, and a column for the decision should be arranged.

Disinfectants.—Professional men generally prefer a solution of corrosive sublimate, 1 part to 1,000 of water, but equal results will be obtained by using a 5 per cent. solution of carbolic acid or creolin, and they have the advantage of being less poisonous. Such a solution is required to wash the hands and instruments in, and when used to disinfect the skin, it has the advantage of being anesthetic locally.

The cattle should be stabled.—If the cattle are at pasture, they should be stabled, tied up in their accustomed stalls, numbered as they stand, and handled quietly by those accustomed to feed and milk them.

They should be allowed to remain undisturbed for

some hours, being careful not to disturb the temperature by large draughts of cold water or over abundant feeding.

Taking the Temperature Before Injection.—Two men to whom the cattle are accustomed should assist the person taking the temperature. One takes the nostril with finger and thumb with one hand and the horn with the other. The second stands at the hip to prevent her from moving from side to side. The thermometer with the mercury forced down by a few sudden jerks, as if shaking ink off a pen, till it marks below 100°, is inserted into the rectum, where it should remain for three minutes. Enter the temperature in a book or chart every three hours, commencing at 8 a.m., 11 a.m., 2 p.m., 5 p.m., and 8 p.m.

The hands and thermometer should be dipped in the disinfectant solution before inserting it into another animal. When there is a large number to be tested, three thermometers may be in use simultaneously, so as to save time.

The best place to inject the test is in the loose skin on the side of the chest above and behind the elbow. The hair should be closely clipped off in a circle about three inches in diameter, and the skin well washed with a 5 per cent solution of carbolic acid.

Injecting the Test.—The dose of diluted tuberculin

is now taken into the syringe, all air being forced out. The operator, if he is a fairly tall man, and the animal not very large, should stand on the opposite side, and reaching across the shoulder, he takes up the disinfected loose skin with the fingers, and if the needle is strong and sharp enough, he penetrates it and pushes the needle its full length into the loose cellular tissue beneath the skin; if not he should with the brad-awl pierce the skin and insert the needle into the puncture, then slowly inject the fluid, withdrawing the needle gradually. The advantage of this position is that the animal, when pricked with the needle, cringes from it, and needles are often broken, whereas in this position it cringes towards instead of from the operator.

The Best Time to Inject the Test.—The injection may be commenced after finishing taking the normal temperature, say, nine o'clock in the evening.

Temperature After Injection.—Commence to take the temperatures at 6 o'clock next morning, take them every three hours till it falls to normal again. If tubercle is present there will be a rise of temperature, which attains its highest point usually about mid-day, sometimes later and generally it falls gradually till in about twenty-four hours from the hour of injection it is normal again.

The rise in temperature is no indication of the ex-

tent of the disease. Often the reaction is a high temperature, and a post mortem examination shows but slight affection.

A rise in temperature of two or more degrees will indicate tuberculosis. In tuberculous herds, one and a half degree would indicate the disease also ; but that temperature in a single animal in a herd would indicate suspicion only, and suggest retesting after thirty days.

SAMPLE OF CHART.

CHART No.....

Tuberculin Test at.....of Cattle owned by Mr.....

No.	Age—Years.	Sex.	Breed.	Colour.	Date.....190					Date.....190						Normal.	Reaction.
					TEMPERATURE.												
					BEFORE INJECTION.					AFTER INJECTION.							
					8 A.M.	11 A.M.	2 P.M.	5 P.M.	8 P.M.	6 A.M.	9 A.M.	12 A.M.	3 P.M.	6 P.M.	9 P.M.	MAXIMUM.	
*1	5	Cow.	Ayreshire.	Red & white	101	101 3-5	102	101 2-5	101 2-5	101 2-5	101 4-5	100	100 1-5	102	102	102	102
†2	8	"	Shorthorn.	Roan.....	101 1-5	101 2-5	101 3-5	101 3-5	101 2-5	103 3-5	106	107	106 3-5	105 1-5	104 2-5	101 3-5	107

Decision—* Healthy. † Tuberculous.

Often no reaction in advanced cases

It is usually found that in animals in advanced stages of the disease, owing to there being superabundance of tuberculin in the system already there is little or no reaction.

Fortunately in such cases the symptoms are so apparent, such as coughing, wasting, enlarged glands. etc., that the owner has little difficulty in recognizing the disease.

Disposal of Tuberculous Carcasses

All animals slaughtered should be buried or burned. It is allowed in densely populated European centres by Government regulation that when the disease is limited and local the flesh may be sold for food, all others are confiscated and destroyed.

In Canada no provision is made in the Animal Contagious Diseases Act for such disposal, on the contrary it is strictly forbiden under section 7, 48-49 V., c. 70 which is as follows:

" Every person who sells or disposes of, or puts off, or offers or exposes for sale, or attempts to dispose of or put off any animal known by him to be infected with or labouring under any infectious or contagious disease, or the meat, skin, hide, horns, hoofs or other parts of an animal known by him to be infected with

or labouring under any infectious or contagious disease at the time of its death, whether such person is the owner of such animal, or of such meat, skin, hide, horns, hoofs or other parts of such an animal, or not, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 48-49 V., c. 70, s, 7.

A few structural points by the help of which a good milker can be recognized

The farmer, having once solved the problem of vegetal production should, and more especially so in this Province, turn his attention towards animal production, and this because during the last few years our farming class has maintained its financial equilibrium and nursed bright prospects for a prosperous future, only by the means of the dairy industry. In view of the facts as stated above, we have thought it important to impart a few rules concerning dairy cows.

The good milk cow has only a medium plumpness, it being kept in mind that the production of milk and of fat are antagonistic to each other. The skeleton is light, the muscle well extended, but not voluminous, the brisket deep and projecting.

The chest generally appears as of small capacity in comparison to the abdomen, which is generally enormous. This disproportion between the abdomen and

the thorax has been the foundation of the old established fallacy that a good milker must necessarily be narrow chested.

The shoulder to be short and upright but fairly muscular. The croup well developed, broad and long; this is an indication of a large pelvis furnishing ample room between the thighs to easily lodge the udder.

The tail to be small, slender, flat and broad at the root. The head small, lean, and bony, tapering to the muzzle. The horns light in substance, waxy in color: the ears large and thin and with considerable action; the skin should have a soft, flexible and substantial feel, and when beneath the outspread hand, it should more easily give with it and under it as though resting on a soft elastic substance. In cattle raised in mountainous districts the skin is generally thicker and the coat rougher.

The physiognomy is placid, the eye bright and clear, the disposition is to gentleness.

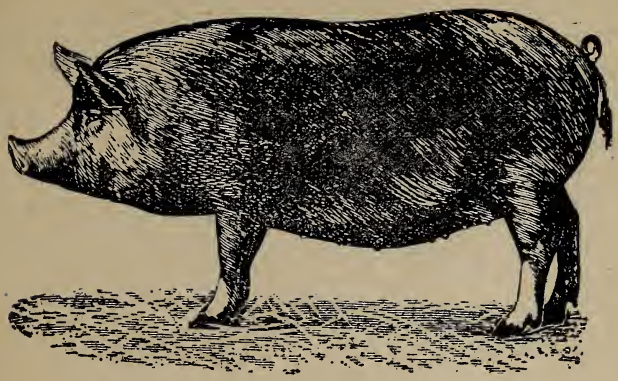
Nervous and irritable cows are to be avoided, however excellent may be their other qualities. They, as a rule, will be found troublesome at milking time. Nymphomaniacs are the worst of all and are to be positively rejected, as but very little can be derived from them and they are a constant source of trouble and uneasiness to the herd.

It is of the utmost importance that the milk cow be in perfect health. This state of health is known by the coolness and dampness of the muzzle, whose surface is covered by drops of a transparent liquid which assumes the color of the mucous membrane over which they are dissiminated. The coat is smooth, shining and waxy to the touch. The vertebral column yields moderately to the pinch.

Breathing is slow and regular, 15 to 18 respiratory movements per minute ; total absence of any nasal discharge. The walk is elastic and easy. The mammal is homogenous in all its portions.

How to know if a cow is a good producer of butter-fat

If the papillæ found on the inner side of the cheeks are large, wide and flat, the animal will give much butter-fat. If the papillæ are round, the butter producing qualities of the cow are only medium, whereas, in cases were the papillæ are small and sharp the cow may safely be set aside as a poor producer of butter-fat.



THE SWINE

CONTAGIOUS DISEASES OF SWINE

CONTAGIOUS CATARRH

The poison in this disease is introduced into the system through the intermediary of the mucous membranes.

The sudden changes of temperature are a predisposing cause of this disease.

SYMPTOMS : Intense fever, occasional nasal discharge, the neck is extended and the animal has a tendency to rub his nose ; the breathing is laborious, the movements of the flanks are jerky ; the cough is short and whining. Constipation is observed in some cases, but, as a rule, diarrhœa sets in, often followed by death.

The post-mortem examination reveals a pronounced inflammation of the tissues connecting the throat and nose, and from the throat to the lungs compact, cheesy deposits are frequently found.

The same disease may also manifest itself by altogether different symptoms, such as very slight cough, breathing fairly easy ; in these cases there is always, at the outset, a stubborn constipation followed by a diarrhœa, the discharge being black and intensely fœtid. There is a partial or total loss of vision. Paralysis usually accompanies and follows these symptoms. The duration of this disease is from 10 to 15 days.

TREATMENT : If the disease is positively known, by means of the symptoms, to be contagious or epizootic catarrh, the animals suffering from it must be slaughtered and buried deeply.

Quarantine all suspicious cases and administer 2 or 3 grains of tartar emetic If there is constipation, use the following prescription :—

R.—Castor Oil, 1½ ounces.
Spirits of Turpentine, 1½ drachms.

Mix well and administer the whole in one dose ; then follow with

R.—Sulphate of Iron, 1 ounce

Divide into 24 doses and give one, night and morning, in mash or in milk.

CONTAGIOUS FEVER OF SWINE

This disease is also called hog-cholera.

It is so very contagious that its germ can be carried to great distances and spread the disease over immense areas of country.

A couple of weeks, sometimes 3 or 4 days, are sufficient for the pullulation of the bacilli and the development of the disease ; the following symptoms are then observed :

Loss of appetite, the animal is feverish, dull, sluggish and prefers to remain lying on his litter. The nose is dry, the skin is hot and covered with red and black patches or ecchymosis, which disappear under the pressure of the finger, to reappear as soon as the finger is removed.

The temperature may rise as high as 105° F. The pulse is small and accelerated. The cough is dry and loud. The abdomen is very sensitive to pressure. As the disease progresses, at the end of 3 or 4 days, there is diarrhœa with black, fœtid and often bloody discharges ; these symptoms indicate an approaching fatal termination

TREATMENT : If it is positively ascertained that you have hog-cholera to deal with, the best thing to do is to kill the animal and to deeply bury the carcass ; to thoroughly disinfect the quarters by burning sulphur or

cleaning the pig pens with a solution of carbolic acid in the proportion of one pound of the acid to each five gallons of water.

As it may be feared that other members of the herd may also have been contaminated, it will be well to use the following prescription on all the animals :

R.—Powdered Sulphur,	1 pound.
Sulphate of Iron,	1 pound.
Nitrate of Potash,	¼ pound.
Powdered black Antimony,	¼ pound.

Mix the whole into 6 gallons of thin mash and you will have a sufficient dose for a herd of 50 pigs. If the herd should exceed or be less than the above number, then regulate the proportions accordingly. Repeat this dose every day.

ANTHRAX

This contagious disease is frequently met with in swine. It is often mistaken with the malignant contagious fever and pneumo-enteritis.

Symptoms : The most apparent symptom is the inflammation of the throat, which soon spreads to the respiratory channels, the pig breathes with difficulty, and can barely swallow. This is followed by convulsions, which generally terminate fatally.

The progress of this disease is very rapid.

There is no treatment. After death, see that the carcasses are buried deeply ; it will be well to cover the carcasses with quick-lime, otherwise, worms by working through the ground may carry the bacilli to the surface and contaminate other animals.

Disinfect the pig-pens, as already indicated.

CONTAGIOUS PNEUMO-ENTERITIS

This is an inflammation of the lungs and intestines caused by a bacilli.

Symptoms : The general symptoms are similar to those of the preceding disease : Cough, fever, constipation, etc., etc., but a characteristic symptom is that of the appearance of patches varying from red to dark blue, which are observed on the ears, the throat, the stomach and the inside of the thighs. There is, sometimes, a black nasal discharge, the disease generally ending with a fœtid diarrhœa. The disease may also terminate fatally in less than an hour when the throat is badly involved In such cases death by asphyxia is caused by the inflammation and swelling of the tongue and throat. The animal remains lying on his litter with a tendency to burrowing his head into the straw and never moves unless compelled to do so.

NON-CONTAGIOUS DISEASES:

INFLAMMATION OF THE LUNGS.

The inflammation of the lungs is recognized by a loss of appetite, a more or less pronounced cough, by chills and by fever. Breathing is accelerated; the animal does not remain lying down very long and appears easier when standing. This is explained by the fact that the standing position allows more freedom to the play of the lungs.

TREATMENT: The pig-pens must be thoroughly ventilated, be free from dampness and, if possible, have the sun to shine into the very pens. Allow an ample litter. Apply strong mustard blisters to the sides, just in rear of the fore legs and internally use the following prescription:

R.—Ammonia Muriate, ½ ounce.
Nitrate of Potash, ½ ounce.
Tincture of Aconite, 10 drops.

The whole mixed with one pint of water, then of this mixture give a tablespoonful 3 times a day in gruel.

TONSILITIS

The inflammation of the glands of the throat often terminates fatally unless adequately treated from the outset.

SYMPTOMS: If it be noticed that the pigs have a difficulty in swallowing, and the throat is hard, sensitive to the touch, tumefaction is observed if the tongue is protruding, then you can safely make use of the treatment prescribed for tonsilitis.

TREATMENT: Take a penknife and scarify the throat until you have a flow of blood; then apply linseed poultices. Feed on milk diet for a day or two.

TRICHINOSIS

This disease of the swine is characterized by the presence in the muscular tissue of nematoid worms called "*Trichina Spiralis.*"

This disease may, the same as tuberculosis, be communicated to human beings. It is introduced into the system through the medium of the digestive organs and is exceedingly dangerous. In order that a hog may become infested by trichinæ it is necessary that he should eat meat containing these parasites. Every one knows that hogs are not loath to eat rats, mice, cats, etc., etc., all of which are frequently affected with this disease.

SYMPTOMS: There is inflammation of the diseased muscles, sensitiveness to touch and diminution of volume. The loins are rigid. In order to positively ascertain the presence of trichinæ, it is necessary to have

recourse to microscopy. The best preventive measure is to have all pork meat intended for human consumption thoroughly cooked.

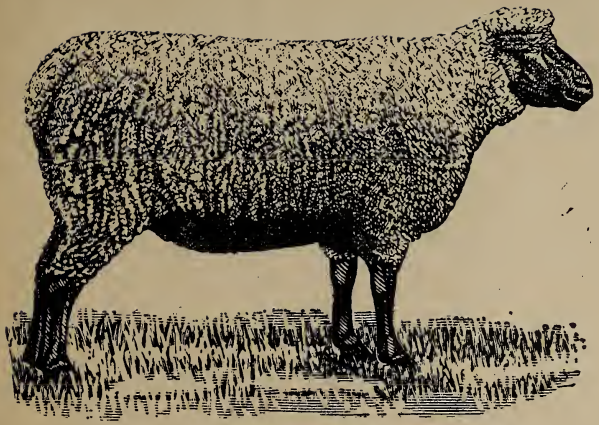
DIARRHŒA

Diarrhœa is more frequently met with in young animals, which are often fed on too nutritive food, or else with food of inferior quality, such as sour milk for instance.

TREATMENT: Feed with fresh milk to which is added an equal quantity of lime-water, and order the following prescription, viz.:

R.—Powdered Gentian, 1 ounce.
Powdered Opium, 1 drachm.

Divide into 12 powders and give two daily in the feed.



SHEEP

EPIZOOTIC CATARRH

The ordinary seat of this disease is the nasal mucous membranes, but it may spread to the stomach and the intestines.

SYMPTOMS: There is a watery discharge from both the eyes and the nose, the appetite is diminished, the animal is dull and sluggish, the pulse is weak, there is no cough. At the end of a few days the discharge thickens and is sometimes tinged with blood. The eyes are half closed. At this period of the disease the animal is emaciated and very weak. The pulse is

almost imperceptible, there is a total loss of appetite and the breathing is laborious.

TREATMENT:

R.—	Rhubarb,	1 ounce.
	Carbonate of Magnesia,	6 ounces.
	Water,	1 pint.

Give two tablespoonfuls 4 times a day until the laxative effects of the drugs are observed.

APOPLEXY

Very fat and sanguineous sheep are especially predisposed to this disease. The animal is stricken down without a moment's warning, as though struck by lightning, and unless help is at hand death soon follows.

The only possible treatment is a copious blood-letting at the jugular (neck).

All very fat sheep showing signs of sluggishness, whose pupils are dilated, whose nose is red or purple, should be bled at once. This can be followed by the administration of a couple of ounces of medicinal salts, the first full dose of which is to be followed by daily half doses continued for 2 or 3 days.

INFLAMMATION OF THE BRAIN

The causes of this disease are identical with those of apoplexy and the general treatment is also similar.

TETANUS (*Lock-Jaw*)

This disease is usually the sequel of wounds caused by the horns of some other animal or by barbed wire fences, or through any other accidents.

SYMPTOMS : The symptoms are of the easiest to recognize : the animal becomes rigid, locomotion is very difficult, the jaws are tightly closed, the animal is nervous and irritable.

TREATMENT : This consists in placing the animal in a dark and quiet place, where he is not to be disturbed except at feeding times or to administer medicine.

R.—The size of a pea of solid extract of belladonna 3 or 4 times a day.

MANGE

This disease, caused by a microscopic parasite lodging itself in the skin, produces itchiness and the formation of scabs.

The presence of this parasite is ascertained by a liquid secretion, which in drying, forms into scabs, followed by the fall of the fleece.

It cannot be impressed too emphatically that this disease is very contagious. Consequently as soon as an animal is observed being affected with mange, it will be well to isolate it and remove it to a distance of

not less than 300 yards, nor should such an animal ever be allowed in public places.

Carefully disinfect the quarters in which the animal has been.

TREATMENT :—	Carbolic Acid,	4 pounds.
	Quick Lime,	3 pounds.
	Carbonate of Soda,	8 pounds.
	Soft Soap,	8 pounds.

Mix the whole into a mass of the consistency of dough and use in the proportion of one pound of the mixture to 8 gallons of water. Take 2 gallons of this preparation to each animal, which should be thoroughly washed with it.

FOOT ROT

Foot rot is detected by a redness appearing on the skin above the hoof. At first the hairs are straight, then ulcers, accompanied by a discharge, make their appearance. Later on the whole foot seems to be decaying, naturally there is lameness, and the whole system is involved in the disorder.

TREATMENT : With the help of a knife, remove all mortified tissues and wash the wounds with a solution of carbolic acid in the proportion of 5 parts of the acid to 100 parts of water.

Keep the animal in a dry place and examine the feet every day ; give nutritive food. Bathe twice daily in a

solution of sulphate of iron. Internally give a tonic such as :

R.—Common Salt,	2 drachms.
Sulphate of Iron,	½ drachm.
Nitrate of Potash,	½ drachm.

Repeat every day until recovery.

INFLAMMATION OF THE FEET

To compel sheep to make long journeys over stony roads may occasion inflammation of the feet. As a rule rest and cold water foot baths are sufficient to bring the feet back to their normal condition.

Should any foreign bodies such as stones, etc., find their way into the hoof, they must, of course, be removed and then dress with oakum impregnated with pine tar.

WORMS IN THE LUNGS

These worms are generally found in the wind-pipe, the bronchial tubes or the lungs. Their presence is detected by an intensely hard cough, which often upsets the whole animal.

The animal has a tendency to rub his nose on the ground.

When these symptoms are observed, examine the mouth and throat for traces of worms : there are also worms in the fœces.

TREATMENT : Fumigate the animal with turpentine and internally adminster 2 ounces of sulphate of magnesia dissolved in a little water.

BEFORE AND AFTER PARTURITION
(*Lambing*)

The duration of gestation is of about 21 weeks. During that period, the animals require more careful attention ; they must be well fed, without, however, fattening them. They should be kept in well ventilated, dry and temperate places, as exposure to cold may prove detrimental to the lambs.

During parturition, heat the building in which the animal is, all persons except the attendant being kept away from the place.

If the fœtus presents itself abnormally, efforts must be made to alter its position by introducing the hand and arm, well oiled, into the passage, great care being taken not to wound either the mother or the lamb.

Parturition over, give the lamb some warm milk, and if it be observed that the lamb is cold, give him a warm bath, care being taken to dry him thoroughly afterwards.

During the following few days the mother should be kept apart from the remainder of the herd and be carefully and nutritively fed.

POULTRY

CATARRH

This disease is caused by exposure to cold winds or dampness.

In catarrh, a swelling of the eyes and sides of the head and a watery discharge from the nose are observed.

TREATMENT : Place the animal in a suitable place, feed with warm food, on which a little pepper or powdered ginger has been sprinkled.

BRONCHITIS

This disease is a frequent complication of catarrh. It is also caused by exposure to dampness and cold.

There is cough, the neck is extended to facilitate the introduction of the air to the lungs, sometimes the breath is quite offensive.

If the disease assumes a grave aspect, give :

R.—Calomel, 1 grain.
Tartar Emetic, $\frac{1}{8}$ grain.

To be followed with this second prescription :—

R.—Chlorate of Potash, 2 drachms in 2 quarts of drinking water. This water is to be left so that the chickens may drink it at will.

Gargling with borax dissolved in water is also beneficial. Good ventilation and scrupulous cleanliness are especially recommended.

ROUP (*Diphtheria*)

As soon as this disease is observed, there must be no hesitation in at once killing and burning the affected fowls, care being taken that not even the smallest portion of any carcass be left in the vicinity of the poultry yard or the coops.

The earliest symptoms of this disease are somewhat similar to those of catarrh, but with this difference, that in roup the nasal discharge is thick, opaque, and very offensive.

A white or yellowish and foamy secretion is found in the corners of the eyes, the eyelids are distended and often the eyes are closed, the sides of the face are swollen, the fowls weaken rapidly and death takes place.

TREATMENT : Place the fowl in a dry and warm place. Feed on soft but nutritive and stimulating foods.

To young fowl, administer a teaspoonful and to adults a tablespoonful of castor oil.

Syringe out the nostrils with borax, dissolved in water and 4 or 5 hours afterwards follow with :

R.—Balm Capaïba,	1 ounce.
Powdered Licorice,	½ ounce.
Peperin,	½ drachm.

This is sufficient for 30 doses. Give one dose once a day.

VERTIGO

Fowl that are kept penned up and have no exercise or are fed on too nutritive a diet, are predisposed to this disease.

The affected fowls are observed to be turning around as though on pivots and then to fall dead. As soon as fowl are noticed to be weak on their legs and to turn around, it is well to throw cold water on their heads and as soon as there is apparent recovery administer to each one grain of "Jalap."

INDIGESTION

When fowl have, for one reason or another, been deprived of food for some time, and are allowed to eat

copiously and to fill their crops to their utmost capacity, it happens that indigestion ensues.

TREATMENT : With a knife open the upper part of the crop and remove with care the mass of food found therein, then if the incision is too extensive, close up with a few stitches.

Feed on soft food for the following few days.

DIARRHŒA

TREATMENT : R.—Powdered Opium, 1 grain.
Powdered Ipecac, 1 grain.

Give in one dose, to be repeated every 5 hours until the diarrhœa is checked.

PIP

This disease consists in the formation of scabs on the tongue and is generally the sequel of some other disease.

Remove the scabs by means of a solution of borax. If the nostrils are obstructed syringe them out with tepid water.

The administration of a teaspoonfull of castor oil is recommended.

INFLAMMATION OF THE EGG PASSAGE.

The inflammation of the passage through which the eggs pass is easily detected by the fact that the eggs are generally imperfect in shape. To cure give :

R.—Calomel,	1	grain.
Tartar Emetic,	$\frac{1}{12}$	grain.
Powdered Gentian,	6	grains.

The whole in one dose, not to be repeated.

Avoid stimulating ingredients in the food.

WEAKNESS OF THE LEGS

As soon as it is observed that fowl are weak and seem unable to stand on their legs, it will be well to feed them on crushed oats and wheat.

As a tonic administer daily 6 grains of citrate of iron.

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